Volume XIX Number 9

SEP 23 1958

MEDICAL LIBRARY
HISTORICAL BUILDING
DES MOINES, IOWA

DISEASES OF THE NERVOUS SYSTEM

A Practical Journal on Psychiatry and Neurology

SEPTEMBER

1958

(CONTENTS ON PAGE 364))

Published monthly by PHYSICIANS POSTGRADUATE PRESS, 277 Broadway, New York 7, New York
Entered as second-class matter at the Post Office at New York, N. Y.

this discharged mental patient may suffer a relapse

This man was fortunate in finding a good job after his discharge from the hospital. The job keeps him busy, however, and he often forgets his mid-day maintenance medication. His neglect may cause a relapse.

Kris[1] reports that the sustained, 10- to 12-hour therapeutic effect of one oral dose of 'Thorazine' *Spansule* capsule medication ". . . enables the patient to omit the inconvenience of the mid-day dose and also insures a more even distribution of the effect of ['Thorazine']."

One 'Thorazine' *Spansule* capsule taken on arising provides all-day protection against the breakthrough of symptoms and eliminates the "forgotten dose" which may impede the patient's readjustment.

Thorazine*
chlorpromazine, S.K.F.

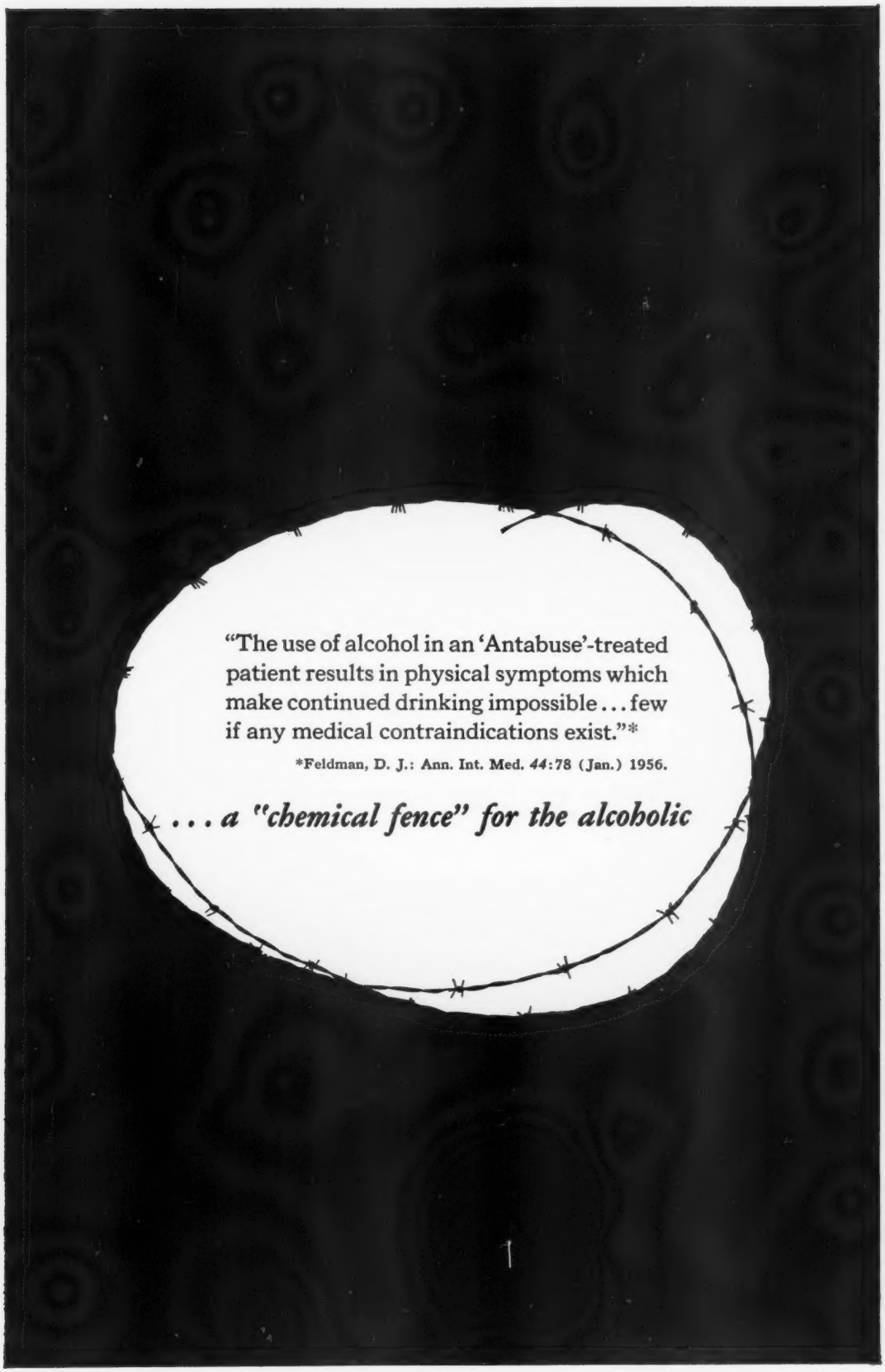
Spansule*
sustained release capsules, S.K.F.

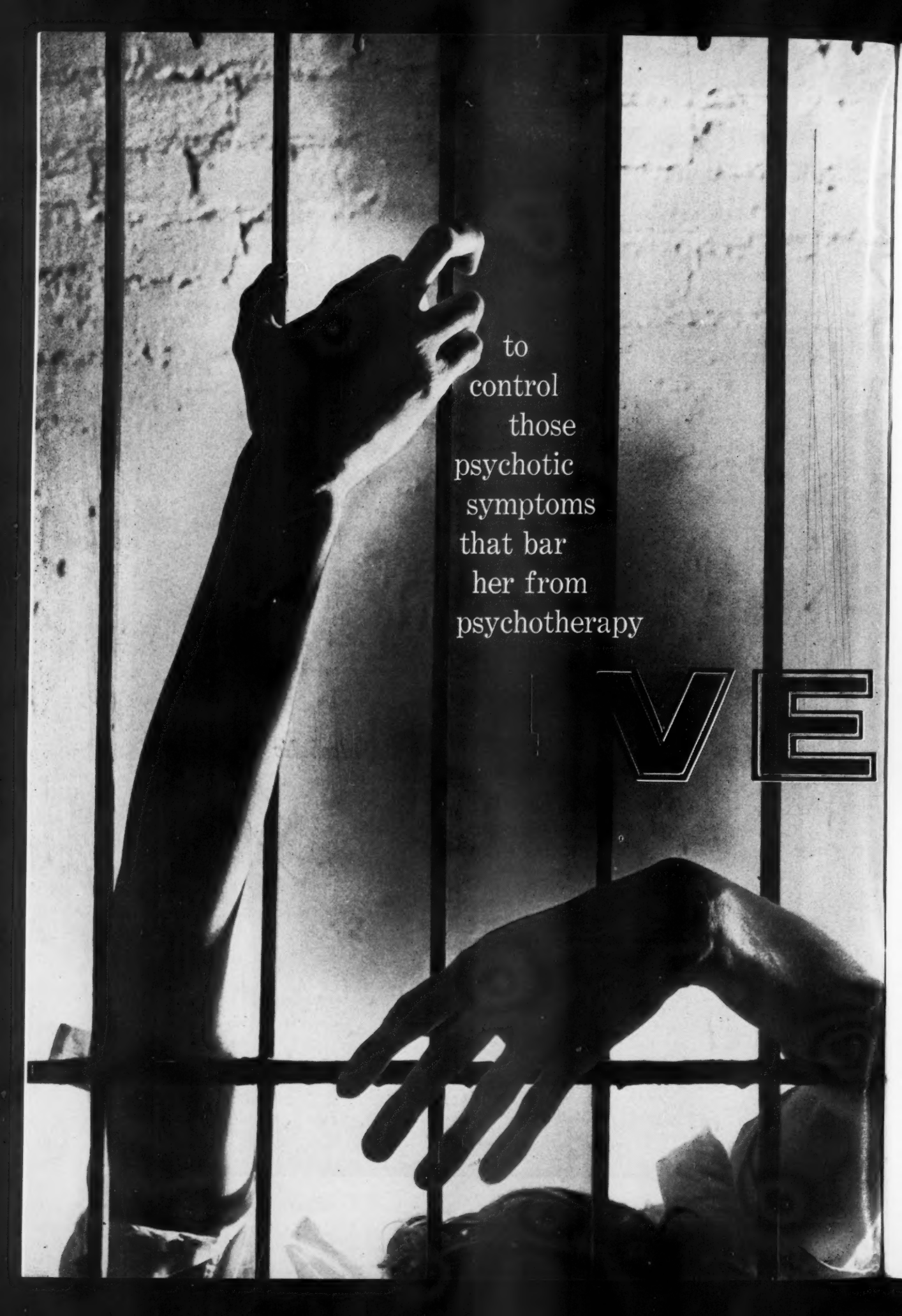
30 mg. 75 mg. 150 mg. 200 mg. 300 mg.

Smith Kline & French Laboratories, Philadelphia

1. Kris, E.B.: Simplifying Chlorpromazine Maintenance Therapy, Am. J. Psychiat. *114*:836 (March) 1958.

*T.M. Reg. U.S. Pat. Off.


"The use of alcohol in an 'Antabuse'-treated patient results in physical symptoms which make continued drinking impossible . . . few if any medical contraindications exist."*
*Feldman, D. J.: Ann. Int. Med. 44:78 (Jan.) 1956.
. . . a "chemical fence" for the alcoholic


to
control
those
psychotic
symptoms
that bar
her from
psychotherapy
VE

CHEMICALLY IMPROVED—beneficial properties potentiated . . . unwanted effects reduced, through modification of the phenothiazine structure

PHARMACOLOGICALLY IMPROVED—enhanced potency with far less sedative effect

CLINICALLY IMPROVED—does not oversedate the patient into sleepiness, apathy, lethargy . . . active and rapid in controlling manic excitement, psychotic agitation and panic, delusions and hallucinations, hostility, and intractable behavior . . . drug-induced agitation minimal

AND IN EXTENSIVE CLINICAL EXPERIENCE—SINGULARLY FREE FROM TOXICITY

IN SCHIZOPHRENIA / MANIC STATES / PSYCHOSES ASSOCIATED WITH ORGANIC BRAIN DISEASE

effects smooth and rapid control of psychotic symptoms → facilitates insight → permits early introduction of psychotherapy → improves patient-personnel relationship → hastens social rehabilitation

SPRIN

Squibb Trifluprom azine Hydrochloride

the new, improved agent for better management of the psychotic patient . . . with greater freedom from toxicity

DOSAGE:

Oral route—usual initial dosage, 25 mg., t.i.d. Adjust dosage according to patient response. (Observe caution in giving daily oral doses in excess of 300 mg.)

Intramuscular route—suggested dosage, 20 mg., t.i.d. (Observe caution in exceeding daily intramuscular doses of 150 mg.)

(See package insert for additional information)

Oral Tablets: 10 mg., 25 mg., 50 mg. press-coated tablets in bottles of 50 and 500

Parenteral Solution: 1 cc. ampuls (20 mg./cc.)

"VESPRIN" IS A SQUIBB TRADEMARK

SQUIBB CENTENNIAL 1858 1958 SQUIBB *Squibb Quality—The Priceless Ingredient*

Volume XIX SEPTEMBER 1958 Number 9

DISEASES *of the* Nervous System

Contents

THYROID THERAPY OF SCHIZOPHRENIA 373
Lewis Danziger

PSYCHOANALYTIC APPLICATIONS TO LEVELS OF GROUP PSYCHOTHERAPY WITH ADULTS 379
Benjamin Kotkov

REDUCTION OF EST INDUCED FRACTURES WITH PENTOTHAL-SUCCINYLCHOLINE ANESTHESIA 385
H. I. Newbold

SOME ASPECTS OF EGO FUNCTIONING AS REFLECTED IN SKIN TEMPERATURE CHANGE 388
Stanley S. Kanter, Alberto DiMascio and Peter D. Watson

A NEW ANTIPHOBIC AGENT, BENACTYZINE 394
Theodore M. Feinblatt, Henry M. Feinblatt and Edgar A. Ferguson, Jr.

EARLY AND LATE RESPONSE TO THORAZINE THERAPY 399
Peter Conran

ELECTROSHOCK THERAPY IN THE PRESENCE OF RETINAL DETACHMENT 401
William Karliner

EDITOR
Titus H. Harris, M.D. 112 North Boulevard, Galveston, Texas

MANAGING EDITOR
George Bisgeir, B.S., LL.B. New York, New York

ASSOCIATE EDITORS

A. F. Bennett, M.D.---Berkeley, California
Francis J. Braceland, M.D.---Hartford, Conn.
Franklin G. Ebaugh, M.D.---Denver, Colorado
Milton H. Erickson, M.D.---Phoenix, Arizona
Hamilton Ford, M.D.---Galveston, Texas
Walter Freeman, M.D.---Los Altos, California
A. Hauser, M.D.---Houston, Texas
Louis J. Karnosh, M.D.---Cleveland, Ohio
Frank H. Luton, M.D.---Nashville, Tennessee
Wm. Malamud, M.D.---Boston, Mass.
Karl A. Menninger, M.D.---Topeka, Kansas
Hans H. Reese, M.D.---Madison, Wisconsin
Lewis J. Siegal, M.D.---New York, New York
Harry C. Solomon, M.D.---Boston, Mass.
S. Bernard Wortis, M.D.---New York, N. Y.

YEARLY SUBSCRIPTION $6.00

Foreign Subscription $6.50

continues to succeed in psychiatric therapy

Serpasil®

(reserpine CIBA)

With a growing history of success, Serpasil continues to play a major role in the treatment of emotionally disturbed psychiatric patients. Under its calming, protective action, agitation and tension give way to serenity--yet drive and energy are retained. For Serpasil "modulates" more than it sedates, making the patient better able to cope with its problems. Even in the most acute states, Serpasil reduces manic excitement and frequently produces dramatic improvement in behavior. 2/2537MK

SUPPLIED: Tablets, 4 mg. (scored), 2 mg. (scored), 1 mg. (scored), 0.25 mg. (scored) and 0.1 mg. Elixirs, 1 mg. and 0.2 mg. Serpasil per 4-ml. teaspoon. Parenteral Solution: Ampuls, 2 ml., 2.5 mg. Serpasil per ml. Multiple-dose Vials, 10 ml., 2.5 mg. Serpasil per ml.

CIBA
SUMMIT, N.J.

WHEN
A MAN IS A
WHIRLWIND...
CALM THE
EMOTIONAL
STORM

The paranoiac's psychotic turmoil is promptly relieved with Pacatal. His restlessness, hyperactivity and other manifestations of agitation can all be brought under control[1-4] and replaced by more normal patterns.

PACATAL...

- "normalizes" thinking and emotional responses
- calms without "flattening," keeps patients alert
- elevates the mood instead of sedating the patient

complete literature available on request

References:
1. Bowes, H. A.: Am. J. Psychiat. *113*:530 (Dec.) 1956.
2. Bruckman, N., *et al.*: Am. J. Psychiat. *114*:262 (Oct.) 1957.
3. MacGregor, J. M.: South African M. J. *30*:1108 (Nov. 17) 1956. 4. Sarwer-Foner, G. J., and Koranyi, E. K.: Canad. M. A. J. *77*:450 (Sept. 1) 1957.

FOR NORMALIZATION—NOT SEDATION **Pacatal®**
BRAND OF MEPAZINE

WARNER-CHILCOTT

now

in a new dosage form...
to simplify treatment
of anxiety states

Trilafon Repetabs

perphenazine

prompt relief that lasts all day

the Repetab way

Availability of TRILAFON REPETABS now makes it easier to achieve smooth and sustained control in anxious, tense or psychoneurotic patients. Each 8 mg. REPETAB provides a full 4 mg. of TRILAFON for rapid onset of relief *plus* a second, timed 4 mg. dose for prolonged all-day benefits.

No need for the agitated patient to be concerned about complicated dosage directions. Just one TRILAFON REPETAB in the morning and another in the evening will carry the average patient through a full day and night.

TRILAFON® REPETABS®—8 mg., bottles of 30 and 100.

SCHERING CORPORATION · BLOOMFIELD, NEW JERSEY

Schering

TR-J-2368

faster recovery from severe depression with psychotherapy and ▲Deprol▲

average recovery time 8 weeks*

Acts Differently ▪ Deprol controls depression without stimulation ▪ relieves melancholia without whipping up an emotionally tired patient.

Treats Psychic and Somatic Symptoms ▪ Deprol restores natural sleep without depression-producing aftereffects ▪ relieves such physical manifestations of depression as headache, cardiovascular and gastrointestinal complaints.

Exceptionally Safe ▪ no known liver toxicity; no effect on blood pressure, appetite, sexual function ▪ side effects are minimal and easily controlled by dosage adjustment.

Rapid Onset of Action ▪ Simple Dosage Schedule

Composition: Each tablet contains 400 mg. meprobamate and 1 mg. 2-diethylaminoethyl benzilate hydrochloride (benactyzine HCl).

Dosage: The usual starting dose is one tablet q.i.d. When necessary, this dose may be increased gradually up to a dose of three tablets q.i.d.

Literature and samples on request.

WALLACE LABORATORIES, New Brunswick, N. J.

*Alexander, L.: Chemotherapy of depression—Use of meprobamate combined with benactyzine (2-diethylaminoethyl benzilate) hydrochloride. J.A.M.A. 166 : 1019, March 1, 1958.

CO-0056 TRADE-MARK

Now in one instrument...
a safe, soothing high frequency current for painless sedation without drugs and a powerful convulsive current at the very least as efficient as the strongest AC machine, but with increased safety due to automatically reduced side effects.

MODEL SOS
REITER SEDAC-STIMULATOR

Now with Model SOS, Reiter SedAc-Stimulator, sedative and convulsive therapies may be given with one machine. A one knob control with a safety spring lock permits simple transition from sedative to convulsive currents.

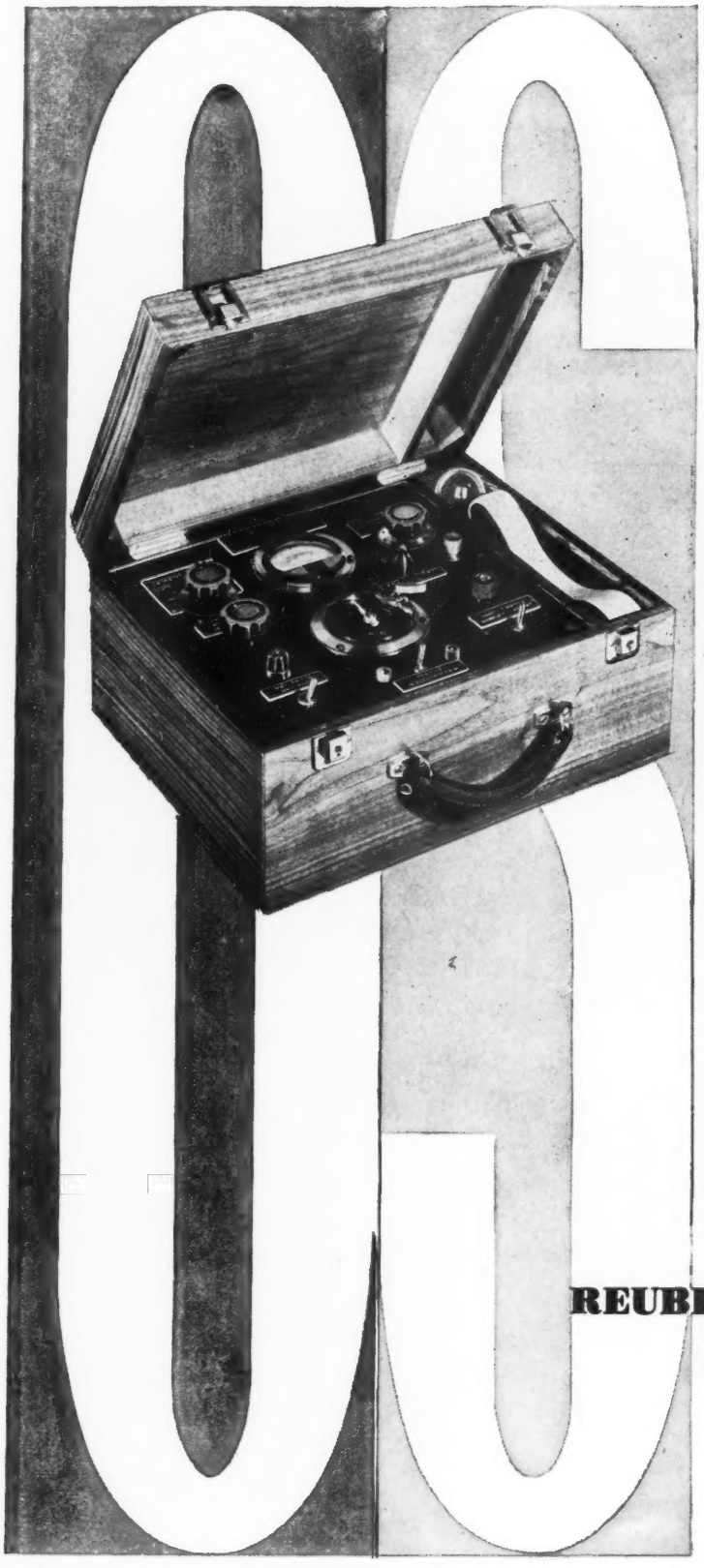
In ECT, the significantly increased efficiency of the Reiter unidirectional current offers greater therapeutic and convulsive effectiveness.

Patients may be treated so they are quickly clear and bright following treatment . . . apnea, thrust, agitation and confusion are notably minimized.

The Reiter SedAc current establishes better transference . . . patients fears are relaxed . . . they become communicative.

Anxious aversion to EST is greatly minimized by application of the SedAc current prior to treatment. Only the gentle SedAc stimulation is remembered.

Literature available on request.



MODEL SOS PROVIDES FOR:

CONVULSIVE THERAPY
maximum convulsive and therapeutic efficiency

NON-CONVULSIVE THERAPIES

ELECTRO-SLEEP THERAPY

FOCAL TREATMENT
unilateral and bilateral

MONO-POLAR TREATMENT
non-convulsive or convulsive

BARBITURATE COMA
and other respiratory problems

MILD SEDAC
without sedation

DEEP SEDAC THERAPY
with sedation

PRE-CONVULSIVE SEDAC
for anxious patients who resist EST

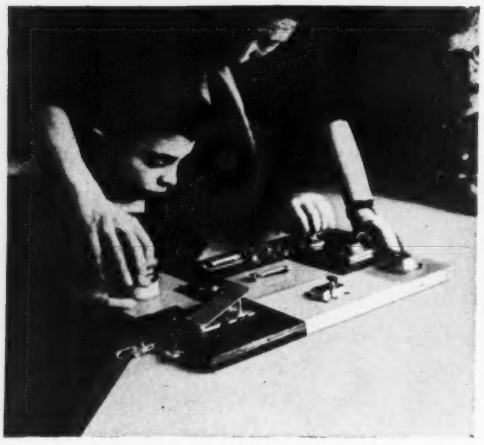
POST-CONVULSION SEDAC
for deep sleep

NEUROLOGICAL CONDITIONS

Model SOS contains the Reiter unidirectional currents and three new SedAc ranges as part of the single selector control. Model S is available without the SedAc current (may be used with separate SedAc attachment). The SedAc is also available as a self-powered instrument.

REUBEN REITER, Sc.D
64 WEST 48th STREET,
NEW YORK 36, N. Y.

Compazine★ for better management of mentally defective children



'Compazine' has greatly facilitated the treatment of institutionalized, mentally defective patients who are emotionally disturbed:

- Good or excellent response in most cases
- Virtual disappearance of constant fighting and destructiveness
- Prompt improvement in ward and cottage behavior, table training and toilet training

Side effects with 'Compazine' have been infrequent and transient in most cases or readily controlled by adjunctive medication. Many patients have shown a significantly improved response to 'Compazine' after disappointing therapy with sedatives or certain other tranquilizing drugs.

Available: Tablets, Spansule® sustained release capsules, Ampuls, Multiple dose vials, Suppositories and Syrup.

Smith Kline & French Laboratories, Philadelphia

★T.M. Reg. U.S. Pat. Off. for prochlorperazine, S.K.F.

MEDICAL LIBRARY
HISTORICAL BUILDING
DES MOINES, IOWA

Volume XIX SEPTEMBER 1958 Number 9

DISEASES *of the* Nervous System

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

Thyroid Therapy of Schizophrenia

LEWIS DANZIGER, M.D.

In this report will be presented the results of a sustained attempt to correct an assumed chemical disorder in schizophrenics by the prolonged administration of thyroid extract or thyroxine. The theory of this treatment has been presented elsewere.[3] It will suffice now to say that the medications are given in an attempt to increase the activity of those enzymes which are known to be influenced by the thyroid hormone. It is hoped that if these enzymes are activated to a greater degree the performance of the brain will be changed in the direction of normality. An attempt is made to increase the basal metabolic rate (BMR) to about the upper limit of the normal range or to the maximum which can be tolerated by the patient, and to maintain the BMR indefinitely at this increased value.

This type of treatment is known from the work of Gjessing[5,6] and others[4] to give excellent results in periodic catatonia. In fact, the experience in periodic catatonia has been so gratifying that the impression has developed in some quarters that only periodic catatonics will respond to thyroid therapy. It will be shown that this impression is not correct.

The purpose of thyroid treatment, whether in periodic catatonia or in other types of schizophrenia or in other mental disorders, is not to make patients quiet enough to leave the hospital. The purpose is to make them able to leave the hospital in good health and to give them a means of preserving this good health at home.

Crude Results

The patients selected for thyroid treatment were 120 schizophrenics admitted to a private sanitarium between 1946 and 1956. At first they were chosen at random, but in more recent years there was a tendency to select patients who had been ill for long periods and who had already failed to recover on shock therapy, on psychotherapy of the psychoanalytic type, or on other conventional methods of treatment. Of this generally unpromising group of 120 patients, 54 (45 per cent) recovered, 15 of them on thyroid medications alone, 39 on thyroid medications together with conventional treatment. No recognized case of periodic catatonia is included in the group of 120.

These over-all figures, while not bad, conceal what can be accomplished by sufficient treatment in recent and even in chronic cases. We turn, therefore, to definitions of the terms "recovery," "duration of illnesss" and "sufficient treatment."

Definitions

Recovery is defined as in previous reports.[2,3] The recovered patient is free of symptoms and complaints, he returns to his former place in society and to his former occupation, he is accepted as well by his family, friends and co-workers. He may or may not admit insight; it is believed that some patients who have insight are too proud, embarrassed or self-conscious to admit it. The recovered patient's personality is not necessarily better than it was before the illness. Recovery does not mean that the patient will never relapse; the same consideration applies in defining recovery from an infection or a fracture. Nor does recovery mean that the patient will not have to continue on medication indefinitely to preserve his health, just as he must if he is to

---

Presented at the Second International Congress for Psychiatry, Zurich, Switzerland, September 6, 1957.

From Milwaukee Sanitarium Foundation, Wauwatosa, Wisconsin.

remain free of the symptoms of pernicious anemia. Similarly, recovery from a period of anoxia does not mean that the patient can remain well if he ceases to breathe. Patients who recover from malnutrition are not less recovered because they must continue indefinitely to eat. So a patient recovered from schizophrenia may have to continue indefinitely on thyroid medication or he may have to continue indefinitely to practice the lessons he learned on the psychoanalyst's couch. Patients who do not recover are counted as complete failures.

The duration of illness is determined from the history as given by the patient and his family. It is defined as the interval between the first troublesome symptom and the beginning of treatment. The illness is not considered to begin with some perhaps forgotten or repressed psychologic trauma very early in life, but only with the appearance of some fairly definite symptom of schizophrenia.

Adequate or sufficient treatment is defined in terms of the experience of the 54 patients who recovered. This experience is summarized in Table 1 and Figure 1. From the regression line in Figure 1 it is apparent that of the patients who will eventually recover, about half recover within the first 50 days of thyroid treatment, about half of the remainder will recover in the next 50 days, and about half of those still sick after 100 days of treatment will recover during the next 50 days. The law of recovery appears to be similar to the law of decay of radioactive materials. The recoverable patients have a half-time of about 50 days under this type of treatment. How many of these half-times should elapse before the physician can reasonably decide that the treatment has had an adequate trial and that its use in a specific case should be abandoned? It seems to me that at least two half-times (or 100 days) should elapse before the physician can permit himself the luxury of despair. This time will suffice for only 75 per cent of the recoverable cases, but a longer period of treatment is too often beyond the financial or emotional resources of the patient, the family or the physicians involved. For present statistical purposes, therefore, a patient is not counted as having had adequate thyroid therapy if he is abandoned before he has been treated for at least 100 days. Patients who have had inadequate treatment are considered to have had no treatment. Their failure to recover is not a criticism of the medication but only of the physician, just as failure to recover from pneumonia on 100 Oxford units of penicillin is not a criticism of penicillin but of the doctor who gives it in such small amounts.

In no case was thyroid therapy abandoned prematurely (before the 100th day) because of the desire of the treating physician. Treat-

TABLE 1—*Days of Thyroid Therapy Required for Recovery of 54 Patients*

Days of Treatment	Recovered	Percent
7	2	3.9
16	8	14.8
27	15	27.7
40	21	41.2
51	23	42.6
60	29	53.7
100	41	76.0
150	47	87.0
180	50	92.5
200	52	96.2
259	54	100.0

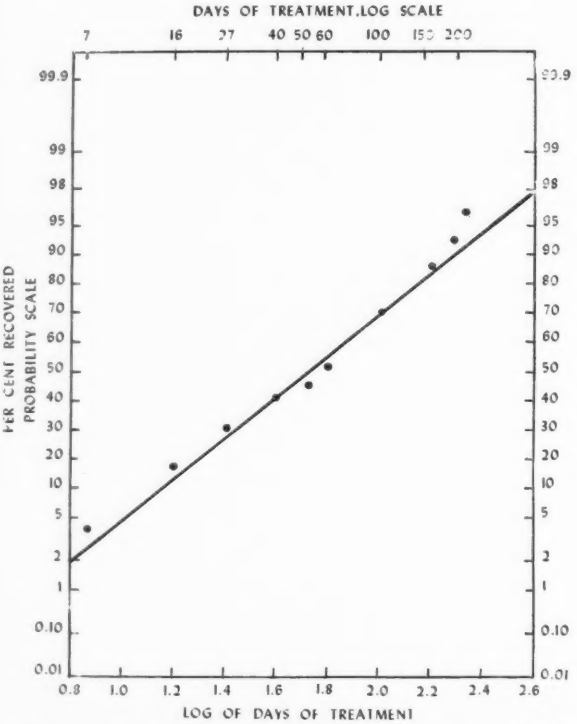


Figure 1. Ordinate, percent of recovered patients who recover within a given period of time; probability scale. Abscissa, number of days of treatment; logarithmic scale. Data from Table 1.

ment was stopped prematurely because of insistence of the patient, his family or his referring physician, or because of suspected inability to tolerate the treatment. It was never stopped because the prognosis seemed poor or because the response before the 100th day was not encouraging.

Similar considerations, given in detail elsewhere,[2] have led to definitions of adequate electric shock and adequate insulin shock therapy.

Adequacy in the daily intake of thyroid medication is another matter. Here the attempt was made to give the patient as much medication as he seemed able to tolerate or as much as he seemed to require. The extreme range of daily doses was 2 to 20 grains (128 to 1280 milligrams) of thyroid extract (U.S.P.) or 1 to 9 milligrams of thyroxine (nearly always racemic thyroxine). Only four of the recovered patients required 10 grains (640 milligrams) or more of thyroid extract, and only two required as much as 4 milligrams of thyroxine. The doses used were, in general, considerably smaller than those reported by Hoskins and Sleeper[7] in their early attempt to treat schizophrenia with thyroid extract.

With these terms defined, we may now turn our attention to the results in adequately treated patients and compare them with the results obtained in patients given adequate amounts of shock therapy.

Results of Adequate Treatment

Table 2 and Figure 2 show the results obtained in 80 patients given thyroid medications, alone or with shock therapy, for at least 100 days, and the results in 291 public hospital patients[2] given adequate shock therapy. The patients are grouped according to the duration of illness before treatment.

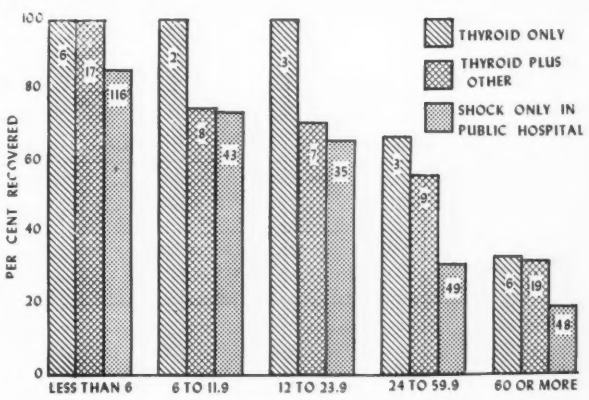


Figure 2. Immediate outcome of various forms of therapy given in adequate amounts of schizophrenic patients. The number of patients in each group, and the duration of illness in each group are indicated. Data from Table 2.

It will be noticed that in each of the subgroups, where the patients are classified according to duration of illness, there is a slight but fairly definite advantage enjoyed by those who received thyroid therapy. This advantage is most striking in those ill for two years but less than five years. This sub-group is extremely important because it is likely to contain so many fairly well preserved patients who have failed to recover under conventional methods and who are often referred for thyroid treatment as a last and desperate resort. The same considerations apply, but to a lesser extent, to the chronic group, ill for five years or more.

It will be noticed also that the thyroid groups contain a large percentage (31 per

TABLE 2—*Immediate Outcome of Adequate Therapy*

Duration in Months	SHOCK THERAPY IN PUBLIC HOSPITAL				THYROID THERAPY ONLY				THYROID THERAPY PLUS OTHER			
	Treated	Per Cent of Total	Recovered	Per Cent	Treated	Per Cent of Total	Recovered	Per Cent	Treated	Per Cent of Total	Recovered	Per Cent
Less than 6	116	40	100	86	6	30	6	100	17	28	17	100
6 to 11.9	43	15	31	72	2	10	2	100	8	13	6	75
12 to 23.9	35	12	23	66	3	15	3	100	7	11	5	71
24 to 59.9	49	17	15	31	3	15	2	67	9	15	5	56
60 or more	48	17	9	19	6	30	2	33	19	33	6	32
Totals	291	101	178	61	20	100	15	75	60	100	39	65
Weighted totals	291		178	61	20.3		16.9	83	60.5	100	44.9	74

cent) of patients ill for five years or more, whereas the shock group contains only 17 per cent of such chronic patients. Contrariwise, the thyroid groups contain only 29 per cent of patients ill for less than six months, while the shock group contains 40 per cent of such patients. When corrections are made for these inequalities in the distribution, the over-all percentage of recovery in the thyroid group becomes 76, as compared with 61 in the shock group. This comparison is shown in Figure 3 and Table 2. By the chi square test,[8] such a difference would be encountered by chance alone once in about 50 tries.

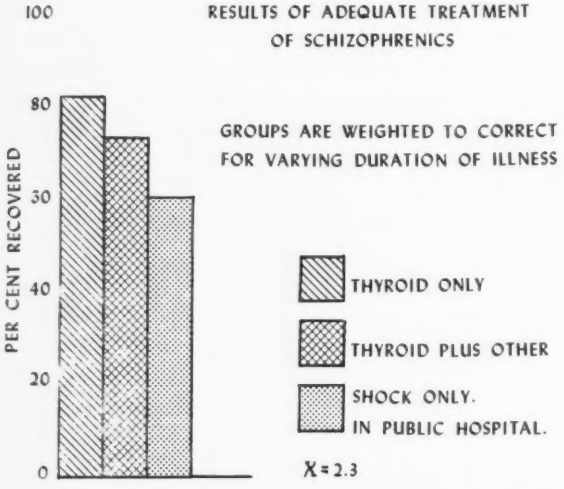


Figure 3. Immediate outcome of various forms of therapy given in adequate amounts to schizophrenic patients. The three groups indicated have equivalent percentages of patients ill for short, intermediate and long periods. Data from Table 2.

While these comparisons are of interest and suggest that thyroid therapy is of value in schizophrenia, it may be argued that it is unrealistic to compare the results of public hospital treatment with the results of private hospital treatment. Because of this possible criticism, the results of private hospital treatment of schizophrenia will be presented in more detail.

An attempt was made to match each of the 120 thyroid patients with a patient, ill for an equal length of time, treated without thyroid medications for the same number of days in the same private hospital and by the same physician. The thyroid patients were selected without regard to the adequacy of their treatment. Matching patients for duration of illness and for number of days of treatment proved to be extremely difficult. Satisfactory matches were found for only 29 of the 120 thyroid cases. However, when the two groups are compared the results are striking. Of the 29 thyroid cases, 24 (83 per cent) recovered; of the other 29 cases, 15 (52 per cent) recovered. Such a difference would be found by chance alone, if we may rely on the chi square test,[8] only once in about 80 tries. The results were obtained, it should be emphasized, by the same physician, in the same private hospital, treating each pair of patients for, as nearly as possible, the same number of days and for illnesses of equal duration.

Further, the superior results in the thyroid group were attained with less work and with less risk, as is shown by comparison of the number of shock treatments given. The thyroid group received a total of 188 electric shocks and 178 insulin stupors, while the other group received 394 electric shocks and 249 insulin stupors. Eight in the thyroid group received no shock therapy at all; of the eight, seven recovered. The comparisons as to result and extent of shock therapy are shown in Figures 4 and 5. It should be mentioned that many of the thyroid patients had failed to recover on conventional therapy alone, given in this hospital or elsewhere.

Long Term Results

So far only the immediate results of treatment have been discussed. We turn now to an examination of the prognosis after the patient has recovered and has been discharged from the hospital.

The long range prognosis for the public hospital group recovered under shock therapy has already been reported.[1] About 40 per cent of the recovered in this group are known to have relapsed by the end of five years. In contrast, none of the 54 schizophrenic patients of this study who recovered under thyroid therapy is known to have relapsed, provided he followed the directions given him on discharge from the hospital. These directions concerned his daily dose of thyroid medication and of vitamins and necessary laboratory tests. The directions were analogous to those given diabetic and other endocrine patients on discharge. Endocrine

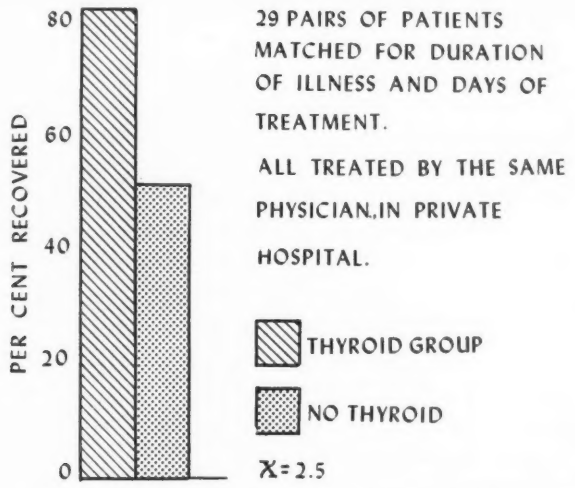


Figure 4. The results of two different types of therapy given to 29 pairs of patients. The patients were carefully matched for duration of illness and for the number of days of treatment given. All were treated by the same physician in the same private hospital.

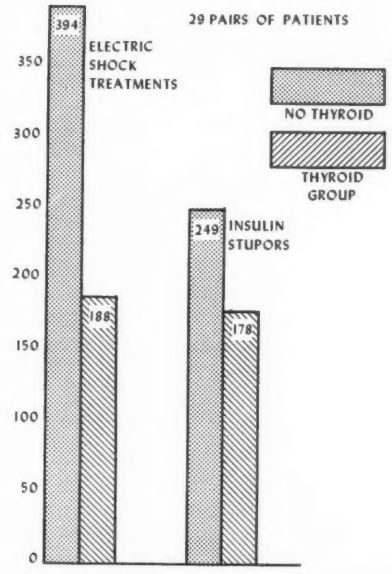


Figure 5. The amount of shock therapy given to 29 pairs of patients, who had been carefully matched for duration of illness and number of days of treatment. All were treated by the same physician in the same private hospital.

patients may be expected to relapse if the directions are not followed carefully.

The known relapses in the thyroid group number 23. Each relapse was preceded by a failure of the patient or his family physician to observe the directions and recommendations given at the time of discharge from the hospital. Some patients continued to follow directions for two years or more before becoming careless and relapsing. Most relapses occurred within a few weeks or months after the directions were disregarded, but one is known to have occurred two years after thyroid extract was stopped. On the other hand, some patients have followed directions and remained well for 10 years.

It has been suggested that patients discontinue thyroid therapy because they have already relapsed, or because they are beginning to relapse. As to this point, careful questioning of patients and families at the time of readmission to the sanitarium, after relapse, revealed the following: In 21 of the 23 cases, the patient appeared to be in good health as long as he was following the directions given on discharge; in the other two cases, no definite information could be obtained. In 12 cases, the medication was discontinued or the dose was reduced by the patient, on the advice of friends or because he wished to test his ability to do without the medication. This unfortunate practice is not unknown, also, among other types of endocrine patients, as well as others who must continue with treatment for long periods for the relief or control of diseases such as pernicious anemia, syphilis, tuberculosis and arthritis. In the other nine cases where information was available, it appeared that the recommended dose was inadequate or that the recommended dose was changed by a physician who did not understand the seriousness of the situation.

Of the 23 who relapsed, 14 returned for at least 100 days of further thyroid treatment; of these 14, 12 (86 per cent) recovered.

Some patients who have recovered on thyroid therapy are believed to have discontinued it at home without relapsing. While such fortunate patients have achieved a minor economic advantage and a psychologic advantage which may be of value, they subject themselves to a risk of relapse which would seem to be enormous compared to the advantages.

Some cooperative thyroid patients may have relapsed without my knowledge, but such patients are believed to be very few in number. In Figure 6 it is assumed that 10 per cent of such cooperative patients will relapse in the first five years after discharge,

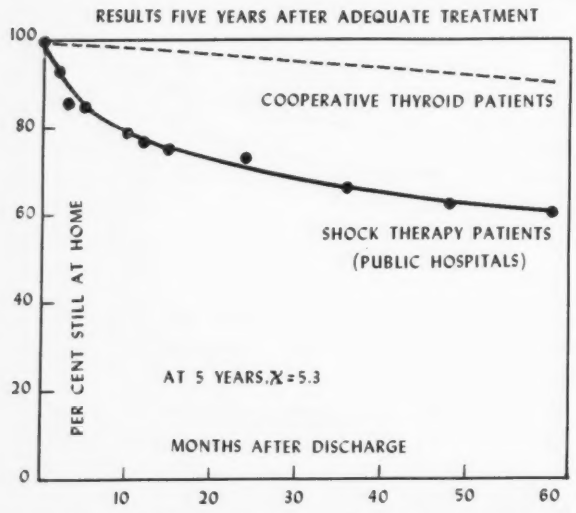


Figure 6. Long term prognosis for schizophrenic patients who are discharged recovered after various types of therapy. Ordinate, the percentage of recovered patients not relapsed after a given interval of time. Abscissa, time in months since discharge from hospital. Upper curve, cooperative thyroid patients; lower curve, shock therapy patients.

as compared with at least 40 per cent of the shock therapy patients. Such a difference in results would occur by chance, according to the chi square test,[8] only once in more than 2,000,000 tries.

It appears that the patients who receive thyroid therapy in adequate amounts enjoy a probably significant, immediate advantage over those who are treated only by conventional methods, and that they enjoy a tremendous advantage if they continue the recommended medications and tests at home.

Summary

Thyroid extract or thyroxine with vitamins, given to 120 schizophrenic patients, none of whom was recognized to have periodic catatonia, resulted in the recovery of 54. The recovery percentage in 80 patients given thyroid therapy for at least 100 days, which is considered to be the shortest time which can be called adequate, was 67.5. Of these 80 adequately treated patients, 60 received some form of conventional therapy (usually shock) in addition to thyroid extract or thyroxine. The immediate results are superior to those attained with adequate shock therapy in a public hospital or with various conventional methods in a private hospital.

Of 23 patients given thyroid therapy for 100 days or more after an illness of less than six months, all recovered. Of 43 patients treated for 100 days or more after an illness of less than two years, 39 (90.7 per cent) recovered. Fifteen of the 80 patients (or 19 per cent) recovered without requiring any shock therapy, and two of these 15 had been ill for five years or more. Those thyroid patients who received shock therapy required much less of it than had to be given to control patients who received no thyroid medications.

Relapses are known to have occurred after 24 of the 54 recoveries, but each relapse was preceded by a period of time in which the patient failed to follow directions given him as to necessary medications and laboratory tests. The incidence of relapse among those who follow directions after discharge is believed to be very small.

REFERENCES

1. Danziger, L.: Probability of Relapse in Dementia Praecox. *Dis. Nerv. Syst.*, 13: 111-16 (1952).
2. Danziger, L., and Kindwall, J. A.: Prediction of the Immediate Outcome of Shock Therapy in Dementia Praecox. *Dis. Nerv. Syst.*, 10: 3-7 (1946).
3. Danziger, L., and Kindwall, J. A.: Thyroid Therapy in Some Mental Disorders. *Dis. Nerv. Syst.*, 14, 3-13 (1953).
4. Danziger, L., and Kindwall, J. A.: Treatment of Periodic Relapsing Catatonia. *Dis. Nerv. Syst.*, 15: 35-43 (1954).
5. Gjessing, R.: Beitrage zur Kenntnis der Pathophysiologie periodisch katatoner Zustande. *Archiv. f. Psychiat.*, 109, 525-95 (1939).
6. Gjessing, R.: Beitrage zur Somatologie der periodischen Katatonie. *Archiv. f. Psychiat. u. Zeit. Neurol.*, 191: 191-326 (1953).
7. Hoskins, R. G., and Sleeper, F. H.: The Thyroid Factor in Dementia Praecox. *Am. J. Psychiat.*, 87: 411-32 (1930).
8. Pearl, R.: Medical Biometry and Statistics. *W. B. Saunders Company*, Philadelphia. Second edition (1930).

Psychoanalytic Applications to Levels of Group Psychotherapy With Adults

BENJAMIN KOTKOV, PH.D.

The practice of group psychotherapy, a review of the literature, and experimental work on goals[26] disclose three distinct levels of psychotherapeutic achievement in group psychotherapy: 1) social participation, based chiefly upon symptom identification; 2) increased confidence, based chiefly upon ego identification; 3) emotional insight, based chiefly upon modified superego identification.

The purpose of this presentation is to point out the similarity in dynamics for all psychotherapeutic echelons as well as to enumerate the special characteristics unique for each.

Commonalities

There is a basic core applicable to all analytically-oriented group psychotherapies regardless of nosological syndrome, age, intelligence, or presenting complaint, namely: reactions of patients to the group situation, psychotherapist's n o n - interventionalist's role, and use of patients as adjunct therapists.

Reaction of Patients. Anxieties are aroused in all patients in the very act of coming together in a group. Each patient becomes alert to an attack for fear of being victimized, or appearing weak in some way. He may react against being afraid by aggressiveness and irritability. Another patient may reserve his thoughts. What if he should be compelled to speak? Would the other members of the group laugh at him? Would he appear physically disfigured or intellectually inferior? He fears rejection if he reveals too much of himself.

The mere presence of a psychotherapist evokes tense and hostile feelings. Relationships to a parental figure were those in which authority was imposed. The reactions of patients to authority were ones of ready rebellion, stubbornness, and strong temper. Hence the members of the group would tend to react to the psychotherapist as to a dominating parent. At such times, the patients in the group see the psychotherapist as an enemy who would push them into danger rather than a reassuring figure who would help them. Symbolic siblings project old, unconscious, competitive needs onto a misidentified parent with subsequent reality distortions and frustrations. The sicker the patient, the more do his fantasies infiltrate reality, and the more insidious do relationships become.

Psychotherapist's Non-Interventionalist's Role. Group psychotherapy is stated simply as a way of working through emotional problems. The members of the group are then invited to talk about their thoughts, wishes and feelings but are told that they need not feel compelled to speak. The group psychotherapist deliberately avoids stimulating additional anxiety, restrains accentuating the negative aspects of ambivalence, and guards against being goaded to reprisal by patients' provocations. The danger of mounting negative transference from members of the group is reduced by a minimum of untoward countertransference reactions from the psychotherapist, and by inherent group interferences which detoxicate projections and dilute transferences. Demarest and Teicher[8] in an excellent paper on transference in group therapy missed their own countertransferences (by the use of active interrogation of their patients) with the result that undesirable transferences in their group were incited rather than diluted.

Patients As Adjunct Therapists. Every new group introduces a collection of unrelated and usually unknown people. The group psychotherapist could easily intensify the alienation of members from a potential group. In order to diminish initial feelings of rejection and dissociation, the patients are encouraged to take the lead. Patients need to be transformed from a collection of isolated individuals into an integrated functioning whole in order to effect favorable psychotherapeutic change. The group psychotherapist's basic task is to manipulate the power of the group, to discourage the patient's own efforts at internalization. "A

group is extraordinarily credulous and open to influence; it has no critical faculty, and the improbable does not exist for it."[12] Patients have been used as adjunct therapists, more or less, in all types of group psychotherapies[3,7,32,36,40,50] and the entire nosological range.[22,42,44]

In the beginning of every psychotherapeutic group, the emotional reactions between the individual patients and the psychotherapist is paramount. As the group discovers a meaning and appropriateness to the sessions, interaction among the members of the group assume substantial proportions.

Levels

Echelon One: Social Participation

Participation group psychotherapy is employed primarily with schizophrenics. Many of these patients are non-verbalizers—a barrier which interferes with the development of relationships so necessary for conducting group psychotherapy. Often diversional therapies are used to prepare the patient for participation psychotherapy.[18]

Lazell,[28] Klapman[19] and others have shown that the didactic approach is the method of choice in group psychotherapy with chronic schizophrenics. The crucial task here is to encourage the patient to graduate from an informational level to social participation. Chafetz,[6] Gray,[15] Gurri and Chasen[13] and others, although sponsoring group psychotherapy with the chronically ill, maintained that its role is ancillary to ECT or lobotomy.

The psychotherapeutic goal in group psychotherapy with schizophrenics has remained unchanged since the turn of the century. It was then that Lazell[28] and Marsh[30] emphasized that the acme of psychotherapeutic achievement with this patient population is in social recovery. Grauer[14] and others remind psychotherapists of the "striking difference between a dilapidated schizophrenic in the chronic ward of a hospital and a socially recovered schizophrenic." Abrahams[1] and others have stated that although delusions do not disappear, they are decreased, patients talk and display more friendly behavior.

The analytically-oriented approach is employed with carefully selected patients based upon their desire to be helped, degree of intactness, level of intelligence, and bids for socialization.[10,44,48] Nosologically, these patients may be acutely disturbed psychotics (non-chronic),[41] schizophrenics in remission,[41] incipient schizophrenics and manic-depressives in a free interval period.[48] The psychotherapeutic goal is still socialization either in terms of leaving the hospital on a trial visit, promotion to better wards and/or ground privileges. The psychotherapeutic technique is essentially that reported by Semrad[42] and his associates: no direct questioning, casual conversation, appropriate comment, handling of psychotic material by fellow patients.

Instead of relating through causes, schizophrenics relate through complaints.[49] One member identifies with another, not so much with people, as with symptoms and illnesses. Freud[12] stated that "identification by means of the symptom . . . has thus become a mark of coincidence between the two egos . . ."

Gradually these patients are led into a group experience. They begin to formulate their attitudes in a less nebulous fashions. They plan with others and share some of their responsibilities. They develop latent capacities for participation and receive attention and recognition for their accomplishments. Participation serves as an opening wedge in the development of relationships.

Echelon Two: Increased Confidence

The literature is relatively sparse on techniques of short-term group psychotherapy.[3,7,20,32,37] During World War II, a number of such papers appeared[2,5,31] (and many others) under military auspices. With a few exceptions,[16,39] brief group psychotherapy in the armed services was principally didactic. Psychotherapeutic techniques were geared to goals which were either information giving or frankly exploratory.

Applications of analytically-oriented short-term group psychotherapy have been presented by the author in several publications.[21-24] The purpose here is to describe the distinguishing characteristics of the second distinct echelon of psychotherapeutic achievement in group psychotherapy. This level can only be reached by a non-psychotic population. The ego is strong enough to collaborate in a psychotherapeutic movement

towards newer, adaptive forms of relationships. In order to weld individuals into a group, certain of its needs have to be fulfilled. Patients' needs are met in terms of identifying themselves with other patients and thus acquiring inflated values, strength, and morale. A patient who voices a positive attitude toward treatment is an apt individual with whom another patient may identify.

To a certain extent, in every relationship to an object, a modified identification occurs. However, there are essential differences: identification is a more intense and special type of relationship. It is a more intense experience in that the patient absorbs something from the group which he incorporates in himself. It is a special type of experience in that one might enjoy the company of guests but one might not wish to identify with them. "Identification," wrote De Saussure,[9] "may be produced by admiration, by affection, or by imitation. It always implies that the relation between subject and object with which he identifies is one of confidence." The symbiotic relation of members of the group to each other assists the individual in combating his isolation. Thus an individual who was isolated takes his place in the group.

Release Mutual Difficulties. Healing resides not only in the group's emotional relationship to the psychotherapist, and the emotional interplay of members of the group to each other, but also in a discussion of their mutual difficulties—only pertinent material becomes incorporated in their understanding. Initially, most patients present their complaints in physical terms. Others demand a cure "on the spot," while still others are unable to aerate. Resistance, in brief group psychotherapy, is undermined by permitting the group to say what it pleases without dispute.

The movement of the group is from a release of anxiety and hostile feelings against derivative figures to covert theoretical, philosophical, or stop-gap conversations reflecting similar feelings. A more personalized direction is obtained by the simple devise of asking for their feelings on the current topic under discussion. A variety of reactions may ensue: much bickering, a shocked attitude, a creeping of understanding here and there, and finally a willingness to come to grips with personal material.

Very few patients in brief group psychotherapy—or group psychotherapy of an open, continuous type with goals fixed on the same modest level—have any real acceptance of the nature of their illness. It is a tremendous task for patients to be convinced that their symptoms are emotionally occasioned, and that there is a relationship between a current conflict and its concomitant symptomatic manifestations.

Experience with many such groups shows that increased confidence results if identification can be augmented through loss of feelings of isolation and loss of fear of personal expression. However, improvement occurs in terms of ego identification alone, and patients leave the group oblivious to any understanding of their resistances. What is repressed and dissociated remains so. Insight into symptoms and their various manifestations are concealed. Patients are helped but not irrevocably.

Echelon Three: Emotional Insight

Group psychotherapy is a complicated process of emotional interactions involving many patients and a psychotherapist. It is precisely because group psychotherapy involves relationships, that unresolved oedipal components are easily projected upon one another, with transferred attributes and affect unconsciously distorting their perceptions of reality. Emotional insight relates to the clearance of projections in order to obtain proper assessments of reality. Hence, psychoanalytic concepts such as transference, resistance, and countertransference holds true for analytic group psychotherapy as it does for individual analysis. Current practice in analytic group psychotherapy presents the epistemology of treatment, works on resistances, focuses on the anxiety of the moment, and exercises countertransference precautions.

Presents Epistemology of Treatment. Most psychotherapists explain the role of transference to the group. It is pointed out that a person's knowledge is not always clearcut,

that there is an emotional recognition which is at odds with an intellectual grasp of reality. Patients are encouraged to detach their reason from their emotionally involved suffering self in order that they may understand the nature of their feelings and its derivation. Members of the group are led to feel that attitudes do exist which are in contradistinction to reality and to the consciously voiced opinion of the individual. It is usually emphasized that feelings of inadequacy are brought about after birth through relationships, that people who cannot accomplish their life tasks are handicapped by inhibitions in terms of their fears, rather than actual lack of endowment. The group feels helpless with regard to a number of pressing situations, and their old conflicts do not enable them to deal constructively with current affairs. Hence, members of the group are encouraged to talk about their feelings of inferiority and inadequacy, including the manner in which they may have acquired such concepts through family orientation, if they are to alleviate their disturbing obsessions.

Mullen[33] defined transference as "the human idiosyncracy to distort the relationships that we have with others; giving others assumed roles reminiscent of someone in the past and present. Within these distorted relationships we find ourselves transferring attitudes and affects and seeking unwarranted gratifications."

Wolf[50] entered in lucid detail an illuminating discussion of the identification and resolution of transference. He stated in part: ". . . the therapist verifies the singular features of transference. . . . To this end he misses no opportunity to clarify any one patient's investment of another or the analyst. Whenever a reaction appears which has the characteristics of projection, he points out to the reactor the transference character of his response. With increasing clinical experience patients become expert in identifying one another's transference reactions. The extreme disparity of various investments confronts each member with the patently illusory nature of these responses. He learns to see his own particular masking of others with parental or sibling surrogate cloaks as equally irrational." Analytic group psychotherapists generally agree with Foulkes[11] that the group "demonstrates in action the meaning of a transference neurosis, its regressive nature, its oedipal significance, its compelling character, as a consequence of which the patient tends to demand the therapeutic re-establishment of a situation as close as possible to the original family constellation." Positive indications for the selection of patients for analytic groups were reported by Slavson.[44]

Centralizes Resistances. The clearance of resistances are essential to the promotion of emotional insight. Future immunity pivots about the successful overcoming of resistances. Redl[38] expressed the general opinion amongst practitioners of group psychotherapy when he stated of resistance that "diagnostically it reveals to us the real forces we fiight, and therapeutically its removal is the only guarantee for lasting success." Spotnitz[45] indicated further that the five types of resistances present in individual psychoanalytic therapy are also encountered in analytic group psychotherapy. "However, a special complication is the fact that each of these forms of resistance operates not only against the therapist in his efforts with each group member, but also against the group members in relation to each other; and finally these individual resistances of the group members may unite to become a group resistance, such as group ego resistance, group superego resistance, group secondary gain resistance, group superego resistance, and group id resistance. . . . First, it is desirable to call the attention of the group to the resistance. . . . Then the therapist may enlist the interest of the group sufficiently to attempt to understand the significance of the resistance, what caused it, how it developed and why it is being used."

Hence analytic group psychotherapists work on resistances rather than to place pressure on the recollections of experiences which are associated with strong and painful emotions. The members of the group cling tenaciously to their resistances in many ways. They attempt to control their insecurity either in silences or open hostility, in phobias or belligerences, control and avoidance of feelings, denial of emotions and anxiety. Details and ramifications of common

forms of resistances are discussed by the author elsewhere.[27]

Anxiety of the Moment. At first, the anxiety of the moment relates from the group's suspicion as to what its members are going to accrue from the psychotherapist and his treatment. There is a stormy insistence for a prescription and a magical release, e.g., "I'm telling you what is wrong with me. What are you going to do about it?" And again, "You never know, you might get killed." The first statement expressed the marked dependency as well as the frustration of the gratification of needs. Beukenkamp[4] referred this to the "primacy of oral dependency." The second remark made by the patient is a projection of the patient's "unconscious wish to destroy the symbol of their dependency needs." Hence, "The associated murderous desires as well as the incestuous drive cause the facing of immaturity to be expressed similarly as a fear of self-destruction."

Peterson-Krag[04] portrayed other unconscious feelings which are likewise bivalvular: "Members whose aberrations of feeling and conduct makes them feel like outcasts, now found that it was these very aberrations that drew the leader's attention and interest to them. . . . Oedipal anxiety is lessened by adding to the fantasy 'My father loves me because of my hurts,' the additional idea, 'So he will not punish me because of my rivalry." Another feeling may be present: "My father loves me because of my hurts is that the hurts have been accepted as castration. . . . Anxiety is lessened because the dreaded punishment has already been endured and need no longer be feared."

Later, the anxiety of members of the group are tied up with their own feelings of inadequacy and helplessness. One patient told the group: "I'm in a sad condition." He cited a nervous condition that he had five years previously. What circumstances are currently affecting this patient that makes him displace his present difficulties onto the past? Another patient stated that he was a 'sissy' in his childhood. What gives the man the feeling that he is inadequate today? What is he troubled about in his dealings with his fellow man, on the job, in school, or at home? What troubles the patient to the extent that old feelings of inferiority are brought back from out of the past into the current situation?

Countertransference Precautions. The group psychotherapist has to exercise care that he does not disturb what is currently transpiring in the group, that he does not accelerate or maximize self-condemnations of the members of the group. Flescher[10] stated that the "term countertransference should include all emotions and attitudes in the therapist that, whether or not they are linked with his personality, influence his comprehension and his use of analytic psychotherapy." For "Anxieties connected with unresolved oedipal elements are mobilized very easily in the analytic situation because of the role of nongratification which automatically makes of the patient a forbidden (incestuous) object." Countertransferences are manifested in terms of "unresolved conflicts of the analyst," the "impact of patient's transference," and "suggestive influences running from patient to therapist."

Hadden,[17] Grotjahn[16] and others felt that the group members were quick to detect countertransference and often attempted to convey appropriate cues to the group psychotherapist. Slavson[43] indicated that the psychotherapist may be biased either in the direction of approval or disapproval and progress may be inhibited by the therapist's goals. Stein[46] warned against premature exposure of id impulses feared and repressed by the group. Kotkov[25] enumerated common forms of countertransference typical of student group psychotherapists, namely: anxiety, counterhostility, poor motivation, need to be omnipotent and heterogeneous scotomata such as increasing the patient's sense of isolation, overevaluation of patient's ego strength, therapist projecting his own interests, and insufficient empathy. Powdermaker and Frank[35] conducted extensive studies for increasing the objectification of psychotherapeutic techniques. Loeser and Bry[29] re-presented the contention of many group psychotherapists that effective controls are exercised through the constant survey of one's role, intramural discussions, and tape recordings. One might also add the use of an observer. Loeser and Bry went on to state that groups are affected by defect in

technique, acting out of therapist, identification with patient's difficulties, passivity as a defense aggression, omnipotence, pedagogy, libidinal interests and narcissistic motives.

Summary

For every group, regardless of depth of psychotherapy, the psychotherapist anticipates standard reactions of patients, exercises a non-interventionalist role, and invites the participants to become adjunct therapists. However, the characteristic defenses, the use of repression, the tempo and progress, and the standards of goals achievable will vary with the type of group. The group ego may be loose, rigid, or encouragingly flexible. Correspondingly, three psychotherapeutic levels are presented leading to social participation, increased confidence, and emotional insight.

BIBLIOGRAPHY

1. Abrahams, J.: Preliminary Report of an Experience in the Group Psychotherapy of Schizophrenics. *Am. J. Psychiat.*, 104:613, 1948.
2. Abrahams, J., and McCorkle, L. W.: Group Psychotherapy of an Army Rehabilitation Center. *Dis. Nerv. Syst.*, 8:30, 1947.
3. Baruch, D.: Description of a Project in Group Therapy. *J. Consult. Psychol.*, 9:271, 1945.
4. Beukenkamp, C.: The Nature of Orality As Revealed in Group Psychotherapy. *Int. J. Group Psychother.*, 5:339, 1955.
5. Cavanagh, J. R., and Gerstein, S.: Group Psychotherapy in a Naval Disciplinary Barracks. *Nav. Med. Bull.*, 49:645, 1949.
6. Chafetz, W. E.: An Active Treatment Program for Chronically Ill Mental Patients. *J. Nerv. Ment. Dis.*, 119:428, 1954.
7. Coffee, H., Freedman, M., Leary, T., and Ossorio, A.: A Technique of group Therapy. *J. Soc. Issues*, 6:25, 1950.
8. Demarest, E. W., and Teicher, A.: Transference in Group Psychotherapy. *Psychiatry*, 17: 187, 1954.
9. De Saussure, R.: Identification and Substitution. *Internat. J. Psychoanal.*, 20:465, 1939.
10. Flescher, J.: On Different Types of Countertransference. *Internat. J. Psychother.*, 3:357, 1953.
11. Foulkes, S. H.: Group-analytic Observation As Indicator for Psycho-analytic Treatment. *Interna. J. Psychoanal.*, 35:263, 1954.
12. Freud, S.: Group Psychology and the Analysis of the Ego. London: *Hogarth Press*, 1948.
13. Gurri, J., and Chasen, M.: Preliminary Survey of the Results of Group Treatment of Psychoses. *Dis. Nerv. Syst.*, 9:52, 1948.
14. Grauer, D.: Problems in Psychotherapy With Schizophrenics. *Amer. J. Psychother.*, 9:216, 1955.
15. Gray, W.: Group Psychotherapy in a State Hospital. *J. Nerv. Ment. Dis.*, 108:485, 1948.
16. Grotjahn, M.: Experience With Group Psychotherapy As a Method of Treatment of Veterans. *Amer. J. Psychiat.*, 103:637, 1947.
16. a. ————: Special Aspects of Countertransference in Analytic Group Psychotherapy. *Int. J. Group Psychother.*, 3:407, 1953.
17. Hadden, S. B.: Countertransference in the Group Psychotherapist. *Int. J. Group Psychother.*, 3:417, 1953.
18. Halle, L., and Ross, JJ. F.: A Therapy Program for Schizophrenic Patients. *U.S. V.A. Dept. Med.*, Surg., Information Bulletin, 1B 10-13, July 1951, p. 3-8.
19. Klapman, J. W.: Psychoanalytic or Didactic Group Psychotherapy. *Psychiatric Quart.*, 28: 279, 1954.
20. Kotkov, B.: Techniques and Explanatory Concepts of Short-term Group Psychotherapy. *J. Psychol.*, 28:369, 1949.
21. ————: Experiences in Group Psychotherapy with the Obese. *Psychosomatic Med.*, 15:243, 1953.
22. ————: Analytically Oriented Group Psychotherapy of Psychoneurotic Adults. *Psychoanal. Rev.*, 40:333, 1953.
23. ————: Group Psychotherapy with Wayward Girls. *Dis. Nerv. Syst.*, 14:3, 1953.
24. ————: The Group As a Training Device for a Girls' Training School Staff. *Int. J. Group Psychother.*, 4:193, 1954.
25. ————: Vicissitudes of Student Group Psychotherapists. *Int. J. Group Psychother.*, 6:48, 1956.
26. ————: Goals of Group Psychotherapy. *J. Nerv. Ment. Dis.*, in press.
27. ————: Common Forms of Resistance in Group Psychotherapy. *Psychoanal. Rev.*, in press.
28. Lazell, E. W.: The Group Treatment of Dementia Praecox. *Psychoanal. Rev.*, 8:168, 1921.
29. Loeser, L. H., and Bry, T.: The Position of the Group Therapist in Transference and Countertransference. *Int. J. Group Psychother.*, 3:389, 1953.
30. Marsh, L. C.: Group Treatment of Psychoses by psychological equivalent of the revival. *Ment. Hyg.*, 15:328, 1931.
31. Michaels, J. J., and Milton, E. O.: Group Psychotherapy for Neuropsychiatric Patients Being Discharged from the Army. *Occup. Med.*, 1:60, 1946.
32. Moreno, J. L.: Who Shall Survive. New York: *Beacon House*, 1953.
33. Mullen, H.: Transference and Countertransference. *Int. J. Group Psychother.*, 5:169, 1955.
34. Pederson-Krag, G.: Unconscious Factors in Group Therapy. *Psychoanal. Quart.*, 15:180, 1946.

35. Powdermaker, F. B., and Frank, J. D.: Group Psychotherapy. Cambridge: *Harvard University Press,* 1953.

36. Pratt, J. H.: The Group Method in the Treatment of Psychosomatic Disorders. Psychodrama Monogr. No. 19. New York: *Beacon House,* 1946.

37. Redl, F.: Group Emotion and Leadership. *Psychiatry,* 5:573, 1942.

38. ————: Resistance in Therapy Groups. *Human Relations,* 1:307, 1948.

39. Sarlin, C. N., and Berezin, M. A.: Group Psychotherapy on a Modified Analytic Basis. *J. Nerv. Ment. Dis.,* 104:611, 1946.

40. Schilder, P.: Psychotherapy (revised). New York: *Norton,* 1951.

41. Schnadt, F.: Technique and Goals in Group Psychotherapy with Schizophrenics. *Int. J. Group Psychother.,* 5:185, 1955.

42. Semrad, E. V.: Psychotherapy of the Psychoses in a State Hospital. *Dis. Nerv. Syst.,* 9:105, 1948.

43. Slavson, S. R.: Analytic Group Psychotherapy. New York: *Columbia University Press,* 1950.

44. ————: Criteria for Selection and Rejection of Patients for Various Types of Group Psychotherapy. *Int. J. Group Psychother.,* 5:3, 1955.

45. Spotnitz, H.: A Psychoanalytic View of Resistance in Groups. *Int. J. Group Psychother.,* 2:3, 1952.

46. Stein, A.: Resistance to Group Psychotherapy. *J. Hillside Hosp.,* 1:79, 1952.

47. Wender, L., and Stein, A.: Group Psychotherapy As an Aid to Out-Patient Treatment in a Psychiatric Clinic. *Psychiat. Quart.,* 23:415, 1949.

48. Willner, G.: Report on Further Developments in Group Psychotherapy on a Chronic Service of a Mental Hospital. *Psychiatric Quart. Supplement,* 28:54, 1954.

49. Wilson, D. C.: Group Psychotherapy and Manic Depressive Psychosis. *Am. J. Psychiat.,* 110: 911, 1954.

50. Wolf, A.: The Psychoanalysis of Groups. *Am. J. of Psychother.,* 3:525, 1949; 4:16, 1950.

8 Orchard St., Brattleboro, Vt.

Reduction of EST Induced Fractures with Pentothal-Succinylcholine Anesthesia

H. I. NEWBOLD, M.D.

In the twenty years which have gone by since electroconvulsive therapy was initiated by Cerletti and Bini in 1937, both the medical profession and the general public have become acutely aware of fractures which may occur concomitantly with this form of therapy. Muscle relaxants such as curare, decamethonium and gallamine used in an attempt to avoid fracture complications with electroshock therapy often proved to be more dangerous than the complications which they were designed to guard against and were abandoned after succinylcholine came into use.

In 1952, Bourne[1] gave a favorable report on the use of succinylcholine as a muscular relaxant. This was followed by other favorable reports in the literature by Holmberg,[2] Ardis,[3] Wilson,[4] Steven,[5] Rietman,[6] and others. It is the purpose of this paper to review the experience of the routine use of succinylcholine as a muscular relaxant with electroshock therapy as employed at the Veterans Administration Hospital, Hines, Illinois, since 1954.

From Veterans Administration Hospital, Hines, Illinois.

Methods

From the time electroconvulsive therapy was begun at Hines Hospital in 1946 it has been the standard practice to require each patient to have the following work-up prior to receiving therapy: complete history, complete physical examination, routine blood count, serology, routine urine, electrocardiogram, chest x-ray and x-ray of the thoracic spine. By repeating an x-ray of the thoracic spine after therapy was completed, some fractures were discovered which would not have been found had this procedure been omitted.

When Pentothal-succinylcholine anesthesia was first started, an anesthesiologist was in attendance while the treatment was given. As the psychiatric staff became more experienced in this form of therapy, the anesthesiologist was dropped from the team. Subsequent experience has proved that Pentothal-succinylcholine anesthesia can safely be

administered by the house staff on psychiatry.

Treatments take place in the morning before breakfast. The patient is given atropine sulfate gr. 1/50 either by hypodermic injection 30 minutes before the treatment or the atropine is mixed with the Pentothal and given intravenously. The patient is placed on a straight, firm mattressed cot without a pillow. The Pentothal (usually 2-4 gr. mixed in 4-8 cc water) is given rapidly intravenously. The needle is left in place and the syringe removed. One drop of blood is allowed to escape to clear the needle of any Pentothal which might precipitate the succinylcholine. The succinylcholine (15-30 mgm.) is injected rapidly and the needle is removed from the arm. The mouth piece is put into place and the electrodes are applied in the usual manner. One minute after the succinylcholine is injected, the electroshock treatment is initiated. After the modified convulsion comes to an end, the mouth piece and electrodes are removed and a tracheal airway is inserted. Oxygen is then administered until the patient is breathing well at which time he is turned on his side. During the convulsion the patient has the minimal amount of confinement, only enough to prevent dislocation of his arms or legs. The mouth, however, is held tightly closed against the rubber mouth piece.

Statistical Data

Since the beginning of electroshock therapy at Hines Hospital in 1946 a total of 13,127 treatments have been given to 1,059 patients. Of these, 10,824 treatments were given to 878 patients without the use of Pentothal-succinylcholine anesthesia and 2,303 treatments were given to 181 patients with the use of the drugs. The latter procedure became standard with electroshock therapy at this hospital on July 2, 1954. The average number of treatments per patient was essentially the same with or without muscular relaxants, being 12.7 and 12.3 respectively.

As illustrated in Table 1, there were 63 orthopedic complications in the series without muscular relaxants giving an incidence of 5.8 per thousand treatments. There were no deaths in this group. In the group given Pentothal-succinylcholine anesthesia, there were no orthopedic complications. There was one fatality in this group which will be discussed later.

TABLE 1

Orthopedic Complication Associated With EST

	Without Pentothal-succinylcholine	With
Vertebral Fractures	56	0
Dislocated Shoulder	3	0
Basilar Skull Fracture	1	0
Chip Fracture of Shoulder	1	0
Torn Biceps	1	0
Fractured Jaw	1	0
Total	63	0

There were no significant complications with Pentothal-succinylcholine of any kind, including laryngospasm, respiratory failure, pneumonitis, cardiac irregularities, cerebral vascular accidents, etc.

Discussion

From the data presented in Table 1, it is apparent that Pentothal-succinylcholine anesthesia brought about a sharp reduction in the number of orthopedic complications.

The one death which occurred was due to a coronary thrombosis in a middle aged man. He had been given the usual pre-shock studies which failed to reveal any evidence of cardiac disease. After the usual electroshock treatment he was breathing well and was turned on his side. The physicians in charge had moved on to the next treatment when it was noted that the patient had poor color. He expired shortly thereafter in spite of attempts to resuscitate him. An autopsy revealed the patient to have a coronary thrombosis. Death was believed due to the thrombosis rather than the electroshock therapy itself. There is every reason to believe that the patient would have suffered the same fate the next day while climbing stairs or the next week while engaging in some other physical activity. Attesting to the safety of Pentothal-succinylcholine is the fact that most of the treatments were given by relatively inexperienced residents. It is interesting to note that the single death which occurred came on a day when the resident was absent and the treatments were being given by two highly experienced men.

Although a large number of treatments

were given to vigorous young men, a significant percentage of patients were in an older age group. Many of these older patients had suffered from various cardio-vascular disorders but were treated because it was felt their mental disorders were more of a threat to their well-being than the treatment procedure. One of the patients had two cerebral vascular accidents and a coronary thrombosis prior to electroshock therapy and withstood the procedure well. Because of the lessening of the valsalva phenomenon with Pentothal-succinylcholine anesthesia, there are many theoretical reasons why it is the procedure of choice with patients suffering from the various cardiovascular disorders.

Laryngospasm was not a problem with the anesthesia as given. The only times free airway was maintained with difficulty was when there was a collapse of the laryngeal muscles. This usually occurred in edentulous patients. It was discovered that an airway could best be maintained in these patients simply by inserting two fingers into the throat and pulling forward on the pharynx and base of the tongue.

One of the chief benefits derived from the Pentothal-succinylcholine anesthesia has been the reduction in anxiety concerning the electroshock treatment. This has made possible a more complete participation in occupational therapy, a factor which is considered important. Since there has been no significant change through the years in the average number of electroshock treatments required, it is evident that this modification of therapy has not interfered with its efficacy. Further testimony as to the safety of this procedure is given by one of the consultants at this hospital[7] who has given over 18,000 Pentothal-succinylcholine anesthesias for electroshock therapy at another institution without a death of significant complication. Another consultant[8] has given approximately 3000 treatments using this method without a death or major complication.

Conclusion

The personnel at the Veterans Administration Hospital, Hines, Illinois, have used Pentothal-succinylcholine anesthesia prior to electroshock therapy since July 1954 and found it to reduce orthopedic complications to zero. Furthermore, it has been found a safe procedure which can be carried out by psychiatrists without the aid of anesthesiologists.

Summary

1. A report is presented of the orthopedic complications associated with 10,824 electroshock treatments on 878 patients without Pentothal-succinylcholine anesthesia and of 2,303 electroshock treatments on 181 patients with the drugs.

2. Without this muscular relaxant the orthopedic complications were 5.8 per thousand.

3. With the muscular relaxant the orthopedic complications were 0.0 per thousand.

4. Since there was no significant change in the number of treatments required per patient (12.7 vs. 12.3) it was concluded that Pentothal-succinylcholine anesthesia in no way interferes with the efficacy of the treatment.

5. It was concluded that Pentothal-succinylcholine anesthesia was a safe procedure which may be carried out by psychiatrists without the help of anesthesiologists.

Acknowledgment: The author wishes to thank Dr. Francis J. Gerty, Professor and Chairman of the Department of Psychiatry, University of Illinois, for his valuable assistance in preparing this paper and Mrs. Mary Marshall, R.N., for her help in compiling the statistics.

REFERENCES

1. Bourne, J. G., Collier, H. O. J., and Saners, G. F.: Succinylcholine: Muscle Relaxant of Short Action. *Lancet,* 1:1225-1229, 1952.
2. Holmberg, G., and Thesleff, S.: Succinylcholine Iodide as a Muscular Relaxant in Electroshock Therapy. *Am. J. Psychiat.,* 100:842-846, 1952.
3. Ardis, J. A., and Wyllie, M. B.: The Routine Use of Muscular Relaxants Prior to Electroconvulsive Therapy. *J. Mental Science,* 99:148-153, 1953.
4. Wilson, W. P., and Nowill, W. K.: Succinylcholine Chloride in Electroshock Therapy. *Arch. Neurol. & Psychiat.,* 71:122-216, 1954.
5. Steven, R. J. M., Tovell, R. M., Johnson, J. C., and Delgado, E.: Anesthesia for Electroconvulsive Therapy. *Anesthesiology,* 15:623-636, 1954.
6. Rietman, H. Jerome, and Delgado, E.: Technique for the Modication of Electroshock with Succinylcholine. *Dis. Nerv. Syst.,* 16:3-8, 1955.
7. Personal communication, Dr. Charles B. Congdon, 1957.
8. Personal communication, Dr. Joseph G. Nemecek, 1957.

30 N. Michigan Ave., Chicago, Ill.

Some Aspects of Ego Functioning as Reflected in Skin Temperature Change

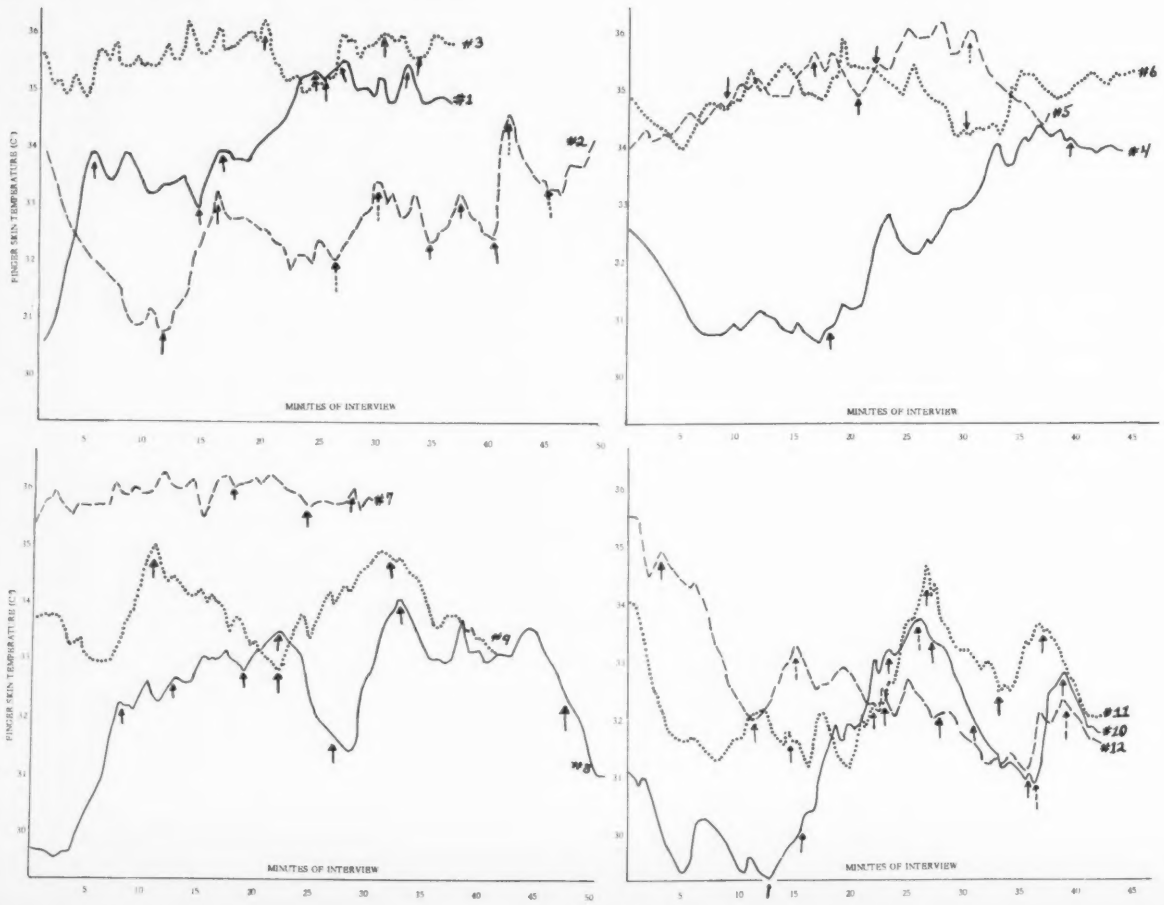
STANLEY S. KANTER, M.D., ALBERTO DIMASCIO, A.M., and
PETER D. WATSON, A.B.

Introduction

Though numerous publications have reported the relationship of affective states, emotions or stress situations to change in body surface temperature, this study appears to be the first report of the application of ego psychological considerations to the systematic and microscopic study of this relationship. We are indebted to several investigators who have called attention to the need for considering "ego involvement,"[4,9] "patient's resources or lack of resources"[10] and "personality adaptation"[17] in order to understand the skin temperature reactions of individuals.

This study is particularly timely since it points the way toward possible integration of the conflicting, inconsistent or disparate findings which have plagued the use of skin temperature measurement in the understanding of psycho-physiologic interrelationships. As an example of such conflict, some authors[9,12] considered 1-2°C fluctuations in body surface temperature as minor or insignificant whereas equally careful workers[7] base fundamental conclusions on skin temperature changes of 0.5°C.

From the Department of Psychiatry, Harvard Medical School, and the Mass. Mental Health Center (Boston Psychopathic Hospital) Boston.



Research Design and Findings

The research setting, the apparatus and some psychotherapeutic considerations have been reported elsewhere.[15] It is necessary to mention here only that this work was done on the first twelve interviews of one patient whose finger skin temperature and verbal transaction during psychotherapy were continuously and simultaneously recorded to yield the raw data. The finger skin temperature values were then graphed against the time of each interview at 30 second intervals. Typescripts with time notations each 15 seconds were made from the tape recordings of the interviews. The physiologic and psychologic data were handled independently by different members of the research team except as described in the experiments.

Two complementary experiments were carried through with this data.

A. The Relationship of Ego Mastery or Non-Mastery of Anxiety to Changes and Level of Finger Skin Temperature.

The first experiment consisted of the selection by the experimental psychologist of twenty sections from the skin temperature graph. These sections were of a few minutes duration, ten sections at times of skin temperature rise and ten at times of skin temperature fall. The sections were evenly distributed among four levels of skin temperature in 2 degree categories from 28.0°C to 36.0°C. Two hypotheses were used to relate the psychological and physiological functioning: a) that ego mastery of anxiety is accompanied by rising finger skin temperature and non-mastery by falling finger skin temperature, and b) that level of free-floating anxiety experienced correlates negatively with level of finger skin temperature. Using (1) the information as to the time in the interviews where these twenty sections occurred, (2) ego psychological concepts gathered from various psychoanalysts,[2,3,6,8,14] (3) understandings gathered from personal psychoanalysis and (4) the above hypotheses, a psychiatrist and a clinical psychologist made for each section independent judgments (1) as to whether the skin temperature was rising or falling and (2) as to level of skin temperature in the range described.

Inter-observer agreement was attained in 80% of the judgments. For the remaining 20%, a combined judgment was made after further discussion of the differences in judgment.

When the judgments for each section were compared with the original data, it was found that 15 out of 20 sections (10 expected by chance) had been correctly judged as to rise or fall and 12 out of 20 sections (5 expected by chance) as to level of skin temperature. For both these results, the chance probability of such level of accuracy is less than .05.

B. The Relationship of Self-Involvement in Psychotherapy to Skin Temperature Change.

In the second experiment the verbal transactions during the twelve psychotherapy interviews were divided into contiguous sections characterized as to (1) predominant affects—positive, hostile, depressed or anxious, and (2) the handling of these affects (expressive or defensive). Cues for the particular judgments included such factors as the tone, rate, steadiness, continuity and content of speech. In addition, each section was described clinically with respect to the leading factors in the degree and type of involvement in the psychotherapy. Subsequently, the classification and description of the content and affects were compared with the graph of finger skin temperature.

INTERVIEW I*

NOTE: The first five minutes were not recorded due to technical difficulties.

Minutes of Section	Predominant Affect	Clinical Description
5–14	AE	Labored discussion—anxious relating of his concerns about himself, the treatment and the therapist.
14–16¼	A Def	Casual—defensive avoidance—speech fast and glib—laughter.
16¼–24	P	Speech slow and hesitant—tie-up of therapist's name with affectionate family memories—importance of treatment—negotiating a compromise.
24–27¾	P	Anxious ambivalence about the therapist.
27¾–32½	A Def	Intellectualizing, defensive superiority, glib speech.

*CODE: Feelings: A—anxious, H—hostile, P—positive, D—depressed. Handling of feelings: E—expressed, Def—defended against.

INTERVIEW II

0–11	AE	Anxiety—increased aggression about the treatment situation—hesitancy—seriousness.
11–16½	P	Speaks faster, relaxed, gives up work at anxiety-laden topic—positive feeling.
16½–34½	AE	Speaks slower, seriously, approaching anxiety-laden topic, hesitant, cautious.
26–30†	A Def	Intellectualization by therapist and defensive distortion by patient.
34½–37¼	A Def	Speaking faster—denial—internal debate.
37¼–40	AE	Slower, serious—more intensely relating—anxious.
40–49	P	Reassured—positive feeling — perspective—relates problem.
41¾–44¾†	AE	Facing and expressing anxiety about exposure.

†Second judgments made when preceding sections were returned for further breakdown.

INTERVIEW III—DEPRESSION PREDOMINANT

0–21¾	P	Guilt feelings—serious, slow speech, collected relating of difficulties, positive feeling, talks of wife's problems—depressed—describes realities of family—depressed—fears of asserting himself.
21¾–25¾	A Def-E	Speaks faster, less earnestness, shift from intellectualization to anxiety about hostility.
25¾–31¼	A Def	Expressive of difficulties with authorities, fear and immobility with men, earnest—fluctuating rate of verbalization.
31¼–34½	AE	Denies instinctual aspect of his functioning—focuses on symptoms—anxious—faster speech.
34½–36	P	Serious, slower—after therapist's comment returns to telling of type of personal relationships and identification with father.

INTERVIEW IV

0–18¼	AE	Slow, hesitant, anxious.
18¼–39½	A Def	Speaking faster—defending by denial, intellectualization and obsessional debate.
39¼–44	AE	Much slower, more hesitant, discussion of problems about masculinity.

INTERVIEW V—PREDOMINANTLY INVARIANT, DEPRESSIVE PREOCCUPATION WITH REALITY

0–17½	A Def	Slow serious speech, using reality as a resistance—expresses positive feeling — depressive awareness of limits in treatment.
17½–20½	AE	Anxiety about working out feelings, being exposed.
20½–37½	A Def	Positive feeling—intellectualizing, somewhat depressive debating—talion principle.
31–37½*	AE	Increased anxiety about retaliation.

*Second judgments made when preceding section was returned for further breakdown.

INTERVIEW VI—PREDOMINANTLY INVARIANT, DEPRESSIVE, POSITIVE

0–9	D	Slow labored speech—depressive tone—realistic problem of lack of productivity, anal pattern.
9–22¾	D	Same type of speech—shift to discussion of patterns of attitudes about relationships with people. 1) wish for positive relationships. 2) perception of own interests as destructive and in conflict with those of others. 3) defensive hostility and isolation. 4) depression.
22¾–30¾	H	Speech faster—content derogatory to man, learning from women who are seen as having the "real stuff."
30¾–45¼	P	Speech slower, more intimate, many long pauses—content: positive feeling, acceptance of dependence on therapist as a father figure.

INTERVIEW VII—DEPRESSIVE, POSITIVE

0–17½	P	Serious speech, positive feeling—topic of lateness, concerns about social relationship, defense against depression—conflict re therapist between wish to conciliate and wish to compete, conciliation seen as a way of not having to feel hostile, a way of not risking insult to one's feelings of omnipotence—anxiety in isolation—wish for special indulgence.
17½–24	H	Feeling of inadequacy—theme of hostility, anxious expectation of attack. Faster, high-pitched speech.
24–28	P	Homosexual transference handled by reversal—lower tone, slower—pauses.
28–29½		Reality arrangements.

INTERVIEW VIII—AMBIVALENCE TO FATHER. CLOSE FEELINGS CONNECTED WITH RETALIATORY ANXIETY ABOUT PROJECTED HOSTILE AGGRESSIVE IMPULSE

0–8	P	Slow, serious speech. Content: guilt re own hostility impulses. Depressed. Increased reality testing correlated with experiencing a positive relationship in treatment—guilt about missed appointments.
8–12¼	A Def	Intellectualization to avoid investigating a tongue slip — speaks faster—flight to reality.
12¼–18¾	D	Slower speech, slips of the tongue, serious discussion of childhood beatings—depressive working toward awareness of feelings.
18¾–21¾	A Def	Defensive promising for the future.

21¾–28	AE	Relating a difficult anxiety-laden area—approaching the painful feelings of failure repeatedly but running away each time.
28–32½	A Def	Therapist stimulated avoidance and intellectualization.
32¼–44	AE	Anxiety about his therapeutic chances—wish to work with therapist and anger at expected desertion alternates with defensive acting out. "Leave before one is left."
44–53*	A Def	Speech faster, smoother; intellectual and wistful. Tells of retreating from anxiety-laden wish to assert himself with men.

*Review indicates this judgment erred in focusing on the wish for relationship with men rather than on the castration anxiety in such situations.

INTERVIEW IX

0–10½	D	Speech serious—moderation in rate and flow. Moderately depressed. Content: 1) Longing to be given—some anger, mostly guilt. 2) Realization of need to work and produce and of block in doing so.
10½–21¼	AE	Faster speech—anxiety about expected attack—feels criticized and inferior — anxiously self-critical. Helpless ego anxiety as he faces the realistic need to work and drop the defense of omniscience.
21¼–31¾	P	Slower, halting speech. Content: need to accept lack of omnipotence and castration anxiety in the course of working—wishes evidence of father figure able to work so he will have identification figure as reassurance.
31¾–42	AE	Otherwise sees mother as the capable one, himself as confused—dereistic because of faculty self-evaluation as a castrated failure on his own but the adorable extension of mother. Returns in feeling to the state at the beginning of this interview.

INTERVIEW X

0–15	AE	Speech rather loud varying in speed. Content: Complaining about waiting, fear of expressing aggression with men, facing the issue more clearly, infantile concept of men and women, avoiding "the fight of the bulls" by presenting self as stupid.
15–23	D	Intellectualization, projection, denial, regression.
12½–26¼*	D	Psychologizing starts at 12½.
23¾–27½	D	Shifts to awareness of own exploiting action.
27½–31	HE	Attacks psychiatrists. "I'm as big as you are."
31–35½	AE	Anxiety that fighting will cause him to lose out in his relationship, fantasies assertion will be seen as hostility, anxiety about trust.
26¼–36*	H	Aggression expressed at 26½, return to projection at 36.

*Retrospective evaluation.

35½–38¾	P	Insight that anxiety about hurting and being hurt if he trusts is his problem. Realistic.
38¾–42	AE	Same as 31–35½, anxiety re trust.

INTERVIEW XI

0–15	AE	Speech slips, emphatic, demanding, distorting, hostile, manipulative. Anxiety about trust and damage, testing therapist's strength.
15–22¼	D	Depressed, intellectualization, away from the issue.
22¼–25¾	P	Tells of positive feelings to therapist. Wish to be helpful.
25¾–33½	AE	Frustration hostility, anxiety re interest and reliability of therapist, facing fact that trust is his problem.
33½–37	A Def	Manipulative, defensive, depressive.
37–40½	AE	Anxiety about being hurt or hurting.

INTERVIEW XII

0–3	AE	Serious, slow, anxious. Content: frustration of infantile demands, realistic improvement.
3–12¼	AE	Speaks fast, excited, relates anxiety-charged dream.
12¼–21½	AE	Speech slow, anxious, hostile aggressive — identification a possibility — increasing acceptance of limits and of maleness with some depression (ego helplessness).
12–15*	A Def	Denial and displacement.
21½–27¾	Unscored	Speech faster—alternates admiration of "father figure" and depression re losing oedipal battle.
*27¾–41½	AE	Speech slow—retaliation anxiety re therapist as aggressive father figure.
36–39	A Def	Psychologizing.

*Retrospective correlation.

Analysis of the foregoing data in relation to the finger skin temperature graphs reveals:

1. Four interviews (III, V, VI, VII) showing the expression of depressive or affectionate feeling or the defensive handling of anxiety were characterized by high stable skin temperature in contrast to the other eight interviews showing more the expression of anxiety and hostility which were characterized by lower and more fluctuating skin temperature. The possibility of air temperature influencing this finding is discussed elsewhere.[16,18]

2. The points of clinical separation of the sections corresponded significantly to the points of inflection of the skin temperature

graph. (32 clinical judgments within ½ minute of the skin temperature inflections, 11 between ½ and 1 minute from a point of major inflection, 10 more than 1 minute away.)

3. There was highly significant association of the clinical characterization of the interview sections and a particular direction of skin temperature change.

a. In instances of depression, affection, or ego defensive functioning, the skin temperature was rising high. (Of 7 sections characterized predominantly as D, 5 showed rising skin temperature and 2 stable skin temperature in the range 34-36°C; of 13 sections noted as P, 12 showed rising skin temperature, 1 stable in range 35-36°C; of 13 sections noted A Def., 12 had rising skin temperature, 1 showed a decline which appeared in retrospect an error in clinical judgment. See note on Interview VIII.)

b. Where hostility or anxiety was expressed, the skin temperature fell or remained low. (Of 3 sections noted H, all showed fall in skin temperature; of 24 noted AE, 22 showed decreasing skin temperature, 2 showed stable skin temperature in the range 31-32°C.

The results from the second experiment are in accord with those of the first and provide evidence that a drop in finger skin temperature accompanies the ego's actively working at a problem in therapy whereas a skin temperature rise is associated with mastery through defensive or adaptive methods.

Discussion

The desirability of testing on additional patients the conclusions reached in this study should be recognized and the need for caution in generalizing from the data of one patient stated. Nevertheless, contributions have often been obtained from the detailed study of the single case. This strikes us as of particular importance in dealing with psychodynamics and their relation to physiologic events, subjects currently much described and little agreed upon.

The point of view implicit to this study is that the relationship of internal and external experiences to physiologic events depends on the way in which the ego perceives and integrates such experiences and deals with the situation in the light of the integrated perception both of the experiences and of the self.[14] The data and findings in this study represent an experimental validation of the findings of Mittalmann and Wolff[10] that "vasoconstriction in the fingers is correlated with an increase in conflict while vasodilation is correlated with uninhibited action and increasing emotional security." We would add the specification that the "emotional security" may be achieved through ego-defensive avoidance of the crucial issues.

The hypothesis that the finger skin temperature is continuously reflective of the ego functioning appears to provide a theatrical framework for integrating into a conceptual whole data from various sources. Our findings and ideas are supported by the work of Brown[18] on the relationship of surface temperature and social traits in young children and by the recent report of the University of Washington group[13] of their research on children's temperature reactions in the presence and absence of their mothers. The latter state, "Individual differences in skin temperature . . . are regarded as being determined by the learned experiences of the child and his characteristic modes of response to life situations." Likewise they are largely in agreement with those of Graham[7] save for the category of depression where Graham's patients showed skin temperature fall. The explanation appears likely that Graham's patients were working at their problems and meeting depressing external situations whereas in our patient, the depression appeared as an affective concomitant of his defensive avoidance of working out the internal conflicts.

Plutchik & Greenblatt[11] have concluded that it is impossible to relate specific verbal content to temperature fluctuations. We would suggest that relationships will be found when the emotional meaning of the verbal content to the individual is taken into consideration. Flecker[4] has stated that "the value of measuring skin temperature during counseling appears to be questionable mainly on the score of the inconclusiveness . . . of temperature changes during an experimental counseling situation." We feel that this thesis needs reevaluation both in the

light of the above considerations and of Flecker's experience "that complete relaxation and 'loss of self' facilitate vasodilation (or easing of vasoconstriction) whereas sudden ego involvement or 'awareness of self' is reflected in vasoconstriction of the fingers."

Freeman's report[5] that chronic schizophrenics show higher skin temperatures at rest than normals but have greater declines upon exposure to cold may be viewed as reflective of the psychotic's ego having withdrawn from the struggle for mastery within the limits of the real world. It might be valuable to review in this light the patients described by Mittelmann and Wolff[9] whose detailed data is presumably available. Their dentist patient (Case VI) appears similar to the patient reported here, both in leading problem, character structure and skin temperature level. Likewise, the apparently contradictory findings of Baker and Taylor[1] that significant increases in skin temperature took place under stress stimulation might be reexamined in terms of the meanings of the specific stress to the particular subjects.

The conclusion is tentatively offered here that the continuous fluctuations in finger skin temperature mirror the shift in the balance between ego resources and internal or external stresses including the stress of facing one's self in psychotherapy.

A number of practical applications to psychiatry logically follow. The use of continuous body surface thermometry would provide objective landmarks during the course of psychotherapy. The differentiation of patterns of skin temperature fluctuations might be used as an aid in psychodiagnosis. Here we should mention the report that under stress, anxiety neurotics respond with far greater skin temperature decline than do compulsive neurotics. Sections of interviews could be used as in experiment A to make up standard protocols testing the awareness of therapeutic personnel concerning psychodynamic functioning or to test the effectiveness of training in psychotherapy. Experiment B could be adapted to study the efficacy of psychotherapeutic techniques in relation to their aims.

Authors' Note: Permission to use the material contained herein has been given by the patient and the therapist involved.

This paper is based on research made possible by a United States Public Health Service Grant-in-Aid No. M354 (c). The principal investigator was Dr. Milton Greenblatt, Assistant Clinical Professor of Psychiatry, Harvard Medical School.

REFERENCES

1. Baker, L. M., and Taylor, W. M.: Relationship Between Skin Temperature, Galvanic Skin Response, and Heart Rate Under Stress. *J. Exp. Psych.*, 48:361, 1954.
2. Bibring, E.: The Mechanism of Depression in Affective Disorders: Psychoanalytic Contribution to Their Study. Ed. Greenacre, P. New York, *International Univ. Press,* 1953.
2. a. Brown, T. E.: The Relationship Between Surface Temperature and Social Traits in Young Children. *J. Gen. Psych.*, 5:401, 1939.
3. Ericson, E. H.: Childhood and Society. N. Y., *Norton,* 1950.
4. Flecker, R.: Skin Temperature As a Psychophysical Variable. *Aust. J. Psych.*, 3:109, 1951.
5. Freeman, H.: Skin and Body Temperatures of Schizophrenic and Normal Subjects Under Varying Environmental Conditions. *Arch. Neurol. and Psychiat.*, 42:724, 1939.
6. Freud, S.: The Ego and the Id (Trans. by Joan Riviere), London, *Hogarth Press,* 1927.
7. Graham, D. T.: Cutaneous Vascular Reactions in Raynaud's Disease and in States of Hostility, Anxiety, and Depression. *Psychosom. Med.*, 17: 200, 1955.
8. Hendrick, I.: A Discussion of the Instinct to Master. *Psychoan. Quart.*, 12:561, 1943.
9. Mittelmann, B., and Wolff, H. G.: Affective States and Skin Temperature. *Psychosom. Med.*, 1:271, 1939.
10. Mittelmann, B., and Wolff, H. G.: Emotions and Skin Temperature: Observations on Patients During Psychotherapeutic (Psychoanalytic) Interviews. *Psychosom. Med.*, 5:211, 1943.
11. Plutchik, R., and Greenblatt, M.: Temperature Changes of the Skin: A Function of Initial Level. *Am. J. Psych.*, 69:403, 1956.
12. Talbot, F. B.: Skin Temperatures of Children. *Am. J. Dis. Child.*, 42:965, 1931.
13. Tjossem, T. D., Leider, A. R., Deisher, R. W., Holmes, T. H., and Ripley, H. S.: Emotional Reactions and Skin Temperature Responses in Children Two to Four. *Paper presented at Am. Psychiat. Assn. Meeting* May 1957.
14. Waelder, R.: The Principle of Multiple Functioning. *Psychoan. Quart.*, 5:45, 1936.
15. Watson, P. D., and Kanter, S. S.: Some Influences of an Experimental Situation on the Psychotherapeutic Process. *Psychosom. Med.*, 18: 457, 1956.
16. Watson, P. D., DiMascio, A., and Kanter, S. S.: A Note Concerning the Influence of the Environmental Temperature on the Finger Skin Temperature. *Psychosom. Med.* In press.
17. Ziegler, L. H., and Cash, P. T.: Emotions and Surface Temperature. *Am. J. Psychiat.*, 95:677, 1938.

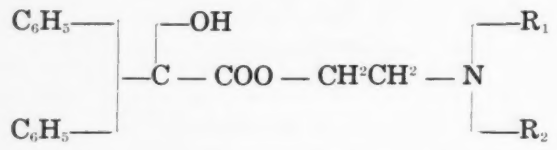
A New Antiphobic Agent, Benactyzine

THEODORE M. FEINBLATT, M.D., HENRY M. FEINBLATT, M.D., F.A.C.P., and EDGAR A. FERGUSON, JR., LL.M.

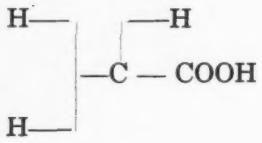
Benactyzine has received a number of therapeutic trials in Europe.[3,4] However, the broad range of cases in which it was tried led to disappointing results. Following a suggestion that it was an antiphobic agent,[5] we studied this phase of conditions of emotional stress and neurosis and found surprisingly favorable results. Fear is a basic response in many of today's tangled, emotional problems and the need for such an antiphobic agent is wide.

Chemistry

The chemistry of benactyzine is suggestive that the drug is a central nervous stimulant rather than a depressant.[1] Supposed tranquilizing agents, comprising benzilic acid esters and their salts, have been known for sometime. Their specific utility, as antiphobic agents with a mild antidepressive response, is characterized in the dimethylaminoethyl ester of benzilic acid as a hydrochloride salt having this general formula:



To understand the structural formula, it is necessary to refer to acetic acid, which has this structural formula:



Apparently, when all of the H groups are substituted, a compound, having the characteristics of benzilic acid,[2] can be formed. The amino acid ester is the active form.

Dosage

The dosage of the material used, as suggested in the literature, is 1 to 4 milligrams, four times daily. However, our series has shown that best results are obtained by using 2 milligrams, three times daily.

Clinical Studies

The purpose of this study was to determine the extent of toxicity, if any, and the clinical utility of benactyzine. The original study was directed toward its effect as a sedative tranquilizer but it soon became apparent that benactyzine was not a sedative tranquilizer. The purpose was then changed to determine to what extent the drug affected the anxiety state and to determine what factors of the anxiety state were modified by it. In the course of the study it became evident that benactyzine is a mild antidepressant, antiphobic agent without ability to relax the skeletal muscles.

The method used to accomplish the purpose of this study was to carefully observe the symptoms of situation responses, anxiety, nervousness, irritability, and insomnia. Each case was given a thorough physical examination to determine whether some physical ailment was the cause of the increase in mental stress. The increased or disturbed reaction to the environmental situation was considered in its pristine form, that is without the complications of physical ailments. All those showing contributory physical findings were eliminated. Following this, a detailed history was elicited and an analysis of the anxiety state made to show the exact nature of the environmental response causing emotional stress. A more exact psychic analysis was made with particular reference to fear provoking responses. Benactyzine was given to those patients in the anxiety group in a dose of 2 mg, three times daily. No other medication was given while treatment was continuing. Except for a small break, during which placebo was tried, there was no interference from other medications. Naturally, each patient had previously had other drugs and a sufficient time elapsed without medication before benactyzine was evaluated. At the end of each week pati-

ents reported to the examining physician and at regular intervals re-evaluation of the psychic state and re-examinations were made.

After treatment was completed, there was an observation period, from two weeks to one month, without medication. This was for the purpose of determining whether withdrawal symptoms developed. It may be stated that there were no habituation or withdrawal symptoms seen. At the end of three months, a final evaluation was made by collating tabulations of all patients and all re-evaluations. This is the basis of the present report and comprises two groups, a total of 70 cases treated, for a period of three months.

There were two groups of cases consisting of 34 males and 36 females, comprising a total of 70 cases. The average patient was between 40 and 50 years, was physically normal, averaged 150 pounds, and averaged 66 inches. The physical health of the group was good and the economic and social status was slightly above average.

Anxiety, due to fear, was present with a strong undercurrent of insecurity as the basis of the emotional disturbance in this group. The main complaint in each case was anxiety. Naturally, nervousness and irritability, with accompanying insomnia, were present in a great number.

The diagnosis in every case was anxiety or emotional stress. On close investigation, looking behind the anxiety state, it became apparent that fear was the basis of a great number of the anxiety states. The emotional stress induced by fear was by far the most important factor in this group. A great majority in the age group of 40 to 50 showed a basic insecurity as the background for the fear response. The younger group, which is also included in the series, although in a smaller number, showed various reasons for their present fear state. However, the precipitating cause is sometimes looked upon as the underlying cause of a fear state. Further investigation usually reveals that the triggering effect of an underlying basic insecurity was always present in the cases showing differing causative fear responses.

The average duration of recognized anxiety states was about three years. Most of these cases of basic insecurity go back much further than three years. However, this was the average time during which the patient had been conscious of emotional stress and had sought help for the condition.

Clinical Results

The patient's response to situations involving emotional stress, was rated as follows: *Poor,*—a disproportionate value placed upon ordinary situations by the patient; *Fair,*—a distorted approach to the problem and an unwarranted continuance of worry about situations; *Good,*—represents a normal response to the situation.

Before medication, there were 17 cases showing poor responses and 53 with fair responses. During treatment (of the number who continued medication), 7 showed a poor response, 29 fair responses, and 16 showed good responses (a total of 52). Anxiety, nervousness, and insomnia were also rated in a similar manner. In every case there was some improvement and about half of the group obtained relief from the complaint.

When the anxiety state was analyzed, it was found that fear responses were present in approximately 50% of the group. This group received far greater benefit from the treatment than any other members. For this reason, benactyzine has been viewed as an antiphobic agent with mild antidepressant activity.

Placebo

Confirmation of our results was obtained with placebo. When the anxiety state was analyzed and those patients exhibiting fear response were considered separately, it was found that very few obtained any relief with placebo. Thus, on the basis of placebo studies, it was concluded that benactyzine is antiphobic in character with mild anti-depressive activity.

The placebo group consisted of 30 cases used for the analysis of the fear syndrome. This group averaged in age 41.2 years and were all ambulatory. The main symptoms were nervousness, anxiety, irritability, and insomnia. It generally required time and effort to discover the fear response. Ordinary history taking may fail to elicit the psychiatric points which are necessary to

understand the fear response of the individual. This was accomplished by a special psychiatric consultation which attempted to elicit the underlying cause of the anxiety state. In addition to the group which was carefully analyzed from this standpoint, another group of 40 cases was utilized in connection with placebo studies to find out what the usual effect of the medication was on anxiety state. In this group of cases, when analysis was made, it was found that here also there was a very good result in those cases in which fear was at the basis of the anxiety state and in other cases the results were indifferent.

In Seager and Leitch[4] study no control trials had been made with the drug. In their series testing anxiety and tension with benactyzine and placebo, it was found that the results from each were quite similar. Their results, however, were not analyzed on the basis of antiphobic action. It is suggested that the conflicting reports represent an attempt to use benactyzine in too broad a classification of anxiety and tension (neurosis). When our results were narrowed by an analysis to show fear response in the anxiety state, it was discovered that this group obtained far greater relief than the placebo group. It is to be expected that the placebo group will show favorable results with psychotherapy, as noted in the series.[4] In our cases no psychotherapy was given and consequently, the effect of benactyzine, even in the generalized cases of anxiety, was favorable. However, when results were analyzed for fear response, there was an immediately apparent good result, and it was concluded that benactyzine, in this group, acted as an antiphobic agent.

Physiological By-effects

Physiological by-effects were investigated. These were not common, unless the dose was raised to a point higher than that recommended. This finding was originally reported by Bersford.[1] The physiological by-effects are palpitation, dry mouth, feeling of unreality, and dizziness. In our experience, hypermanic response has been another of the physiological by-effects. It must be emphasized that all of these by-effects were controllable by lowering the dosage or discontinuing medication and were not serious.

There were three cases showing palpitation, feeling of unreality occurred in seven cases, two cases showed hypermanic response, and one case complained of a dry mouth. Nausea was present in one case, insomnia was present in one case, and there were no cases showing dizziness. In every case the physiological by-effect was slight.

Toxicity

Toxic effects have not been evident in single doses up to 16 milligrams. Usually doses of over 16 milligrams have demonstrated toxic results. The European literature has not reported any toxicity. However, our experience has shown that, in a very small percentage of cases, a rash develops. This is not serious and is controlled by lowering the dosage.

Toxicity was found in only two cases. These cases developed a mild acneform rash which disappeared when medication was discontinued. Hematology, blood chemistry, and urine findings were unchanged and normal after three months of benactyzine medication.

Discussion

It has been emphasized that clinical tests with benactyzine show some effects in neurosis and no effect on psychosis. This is in line with the results found in the present series. The unselected neurotic group did not generally show the good effects to be expected from an ataraxic agent. However, analysis showed that wherever the anxiety state depended on fear, the benactyzine helped in a large range of symptoms associated with the anxiety-fear syndrome. The antiphobic nature of benactyzine was investigated. Benactyzine was found to be effective in those cases in which the emotional stress and anxiety state depended on the fear response. It should be noted that those patients who had what is called a "feeling of unreality" were merely showing the effects of insulation from the environment. This insulation is extremely important in patients who react disproportionately to ordinary situations. It is also important for the normal patient when under unusual stress. It has been pointed out that there was no physical relaxation from benactyzine

although occasionally there was a lessening of nocturnal cramps in the legs.[3]

It was found that benactyzine was different from the usual tranquilizers and fundamentally different from ataraxic agents in that it abolished, in a selective manner, "neurotic" inhibitory avoidance responses which have been caused by stress[5] without usually inhibiting the orienting responses or the conditional reflex response. This has been generally interpreted as antiphobic (antifear) and cushioning (insulating) against the environment.[6]

Chart of Cortical and Subcortical Level of Action

There has been difficulty in placing benactyzine on an activity table of cortical and subcortical reaction modifying drugs. The following table will serve to orient the position of the drug in reference to other drugs of this nature.

BARBITURATES[16] affect the central nervous system directly at the cortical level and interfere with the oxygen supply to the central nervous system, particularly through the mechanism of the co-enzymes.[16]

METAPYRILENE[7] is generally regarded as an antihistaminic (but it also affects the central nervous system directly at the cortical level) and its strong sedative power is sometimes given a primary role.[7]

BROMIDES[17] affect the cortical areas in large doses and act on the co-enzyme system, affecting the oxidative enzymes.[13]

RESERPINE[8] has some effect on the central nervous system causing enforced drowsiness in a large dose, but also affects the subcortical centers similarly to the manner in which other ataraxic and tranquilizing drugs perform.

PROMAZINE,[10] CHLORPROMAZINE,[18] MEPROBAMATE.[9] These three ataraxic drugs affect the subcortical centers more than the cortex but in large doses have a sedative effect.[9]

BENACTYZINE[5] was noted in this paper and elsewhere,[5] and is an antiphobic agent and a mild antidepressant (stimulant).

NOR-EPHEDRINE[13] has properties very similar to those of ephedrine,[14] that is, an anorexiant. This is a measure of its central nervous stimulating effect. It is also a vasoconstrictor.

EPHEDRINE[8,15] is a more powerful anorexiant[8] by reason of its increased central nervous stimulating effect and it is also commonly used as a vasoconstrictor.[15]

AMPHETAMINE[12] exhibits its central nervous stimulating effect by its anorexiant action and its antidepressive action.[12]

Benactyzine has been used as an antiphobic, antidepressant drug in cases of depression in both the manic depressive and involutional type.[5]

Thus, it will be seen that there are gradations depending upon which portion of the central nervous system is stimulated or depressed by the various agents. With this armamentarium the physician should be able, by proper analysis of the underlying cause of each of the mental attitudes and conditions presenting themselves, to normalize the reaction of the patient. Thus the reward systems may be pinpointed in treatment by various drugs.[6]

Olds, Eidison, and Killan[6] have shown that there are "reward centers" in the brain consisting of tiny clumps of brain cells which are closely related to the hunger drive, sex drive, etc. They have the property of being reward centers which, if stimulated, will cause a change in the basic psyche. This change is caused by modifying drugs. By properly choosing the correct medication for subcortical stimulation or depression and thus establishing correct reward centers of gratification, the behavior of the individual can be modified without affecting his awareness of his surroundings and his ability to perform. These are the two major difficulties with the alaphetic hypnotics and soporifics—the loss of consciousness of surroundings and the inability to continue to perform. Some of this criticism may also be leveled at the tranquilizers such as reserpine, except that reserpine is more susceptible to correction by changing the dosage and by additive medication.[8]

The following principles may be helpful in diagnosing and treating anxiety states:[11] anxiety usually exhibits the following symptoms—the patient is fearful of crowds, is afraid of unusual or new situations, is afraid of struggles (arguments). He shuns new situations and people. The history is very important. Anxiety symptoms have a purpose. They control an intolerable threat to the personality. They preserve the psyche. Thus, there is often a rationalization which gives the patient justification for withdrawing from any activity which may cause tension or anxiety by avoiding any situation where his fear may become manifest. For

this reason, it is necessary to examine the patient thoroughly to convince him for he is hard to convince, and rule out in the patient's mind, as well as in the physician's mind, any excuse not to participate in ordinary activity. For this reason, if there is any fear such as cancer phobia or cardiophobia, it is necessary to do a complete analysis. It is also an opportunity for the physician to more thoroughly understand the patient and pick up any small clue which may lead to a physical diagnosis which would otherwise go unobserved.

Typical Case History

Case 5 of the main series was an unmarried young man, age 26 years, height 68 inches, weight 149 pounds, who had complained of nervousness and insomnia for the past six months. Physical examination was essentially non-contributory. He was well nourished and normal in every physical respect. A cursory questioning of his history and psychologic reaction revealed that he was normal in his responses to most situations. He was, however, extremely anxious and slightly depressed. Further examination of the history in greater detail revealed that his anxiety was based upon a guilt by fear caused by an automobile accident in which his female companion was killed. Since that time, although he has been away on week-ends with groups of young people, he has found it impossible to settle his interest on any particular girl and has found himself thinking about his guilt. He is unable to drive with only one passenger in the car but has been able to drive with a group. The traumatic experience was overwhelming and apparently he has succumbed to a fear and guilt reaction which has become a permanent part of his psyche and has interfered with his normal living. In all other responses he is normal.

This incident occurred about 9 months before and has continually become worse in his mind rather than showing the normal reaction of a fading memory. During the past few months, a course of ataraxic medication was tried. Apparently this was not the medication required. Then, a course of Rauwolfia was given. He experienced a slight hypnotic influence which seemed to aid in calming him and forcing him to sleep without any particular worry; but at the same time the phobia was building up and was not affected by this drug.

It was decided to try a course of benactyzine which he received, two mg, three times daily, for a period of three months. He returned each week for an interview, as he had with other medication. Benactyzine decreased the anxiety by reason of its ability to decrease the fear response and, in this case, there was a clear-cut reduction in the build-up of fear. The result was entirely favorable and he is gradually returning to normal libido interest and is losing his fear of driving alone with a female companion.

Summary

In conformity with suggestions in the American literature, and contrary to that reported by the European literature, benactyzine has been found to be an antiphobic and mild antidepressant drug but without any skeletal-muscle-relaxing effect. There are reports of slight sedative action and of slight muscle relaxation qualities (relief of night cramps).

Some physiological by-effects have been reviewed and found to be mild and relatively infrequent.

Toxicity, in the dose indicated, has not been a serious factor in clinical use.

---

150 Woodruff Ave., Brooklyn 26, New York.

Authors' Note: Benactyzine used in this study was kindly supplied by Amfre-Grant, Inc., Brooklyn, New York, who manufacture the drug under the trade-name, "Antifobe."

BIBLIOGRAPHY

1. Davies, E. B.: A New Drug to Relieve Anxiety. *Bri. Med. J.*, pp. 480-484 (March 3, 1956).
2. Fieser, L. F., and Fieser, M.: Organic Chemistry, Third Edition, pp. 706-707. *Reinhold Publishing Corp.*, New York (1956).
3. Coady, A., and Jewesbury, E. C. O.: Clinical Trial of Benactyzine Hydrochloride as a Physical Relaxant. *Br. Med. J.*, pp. 485-487 (March 3, 1956).
4. Seager and Leitch: Benactyzine in Psychoneurosis (*Br. Med. J.*, 2:1407, 1956); A Re-evaluation of Benactyzine in the *J.A.M.A.*, Foreign Letters, 163:576 (Feb. 16, 1957).
5. Alexander, L.: Therapeutic Process in Electroshock and the Newer Drug Therapies (Psychopathological Consideration). *J.A.M.A.*, 162:966-969 (1956).
6. Olds, J., Eidison, S., and Killan, K.: Univ. of Calif., Los Angeles Medical School in Co-operation with Los Angeles Veterans Administration thru Science Newsletter (Feb. 9, 1957).
7. Strauss, B., Eisenberg, J., and Gennis, J.: Hypnotic Effects of an Antihistamine Methapyrilene Hydrochloride. *Annals of Internal Med.*, 42:574-582 (March 1955).
8. Feinblatt, T. M., Feinblatt, H. M., and Ferguson, E. A.: Rauwolfia-Ephedrine as a Hypotensive-Tranquilizer. *J.A.M.A.*, 161:424-426 (1956.).
9. Phillips, R. E.: Use of Meprobamate (Miltown) for the Treatment of Emotional Disorders. *Am. Pract. and Dig. of Treatment*, 7:1573 (1956).
10. Fazekas, J. F., Sullivan, P. D., and Schultz, J. D.: Use of Dimethylamino-n-propyl-phenothiazine in the Management of Patients with Acute Mental Disturbances. *M. Ann. D. C.*, 25:67 (Feb. 1956).

Fabing, H. D., Fazekas, J. F., Sullivan, P. D., and Schultz, J. D.: *Neurology,* 5:390 (1955).
11. Braceland F. J.: The Family Doctor and Mental Illness. *State of Mind,* Vol. 1, No. 1 (Jan. 1957).
12. Goodman, L. S., and Gilman, A.: The Pharmacological Basis of Therapeutics, Second Edition (Action of Amphetamines on the Central Nervous System, pp. 517-519). *The Macmillan Co.,* New York (1955).
13. Feinblatt, T. M., and Ferguson, E. A.: Sedation Without Side-Effects by Use of Niacin Hydrobromide. *N. Y. State J. of Med.,* 52:2017-18 (1952).
14. New and Non-Official Remedies: Containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1955 (Nor-Ephedrine). *J. B. Lippincott,* New York (1957).
15. Goodman, L. S., and Gilman, A.: The Pharmacological Basis of Therapeutics, Second Edition (Ephedrine), pp. 505-516, *The Macmillan Co.,* New York (1955).
16. Goodman, L. S., and Gilman, A.: The Pharmacological Basis of Therapeutics, Second Edition (Barbiturates), pp. 123-153, *The Macmillan Co.,* New York (1955).
17. Pavlov, I. P.: Conditioned Reflexes and Psychiatry, Vol. 2, *International Publishers Co., Inc.,* New York (1941).
18. Kinross-Wright, V., and Finney, R. M.: Chlorpromazine as Therapeutic Agent in Clinical Medicine. *Arch. Int. Med.,* 95:202-218 (Feb. 1955).
19. Jenkins, G. L., and Hartung, W. H.: The Chemistry of Organic Medicinal Products, Second Edition. *John Wiley and Sons, Inc.,* New York (1945).

Early and Late Response to Thorazine Therapy

PETER CONRAN, M.B.

Introduction

On reviewing the results of the use of Thorazine in a section of a state hospital for the year 1956, it became apparent that:

1—A hard core of cases did not respond until they received a total dose of over 50,000 milligrams, for a minimum period of nine months, after which all responded.

2—In the majority of cases those who were eventually to respond to this type of medication did so if they received treatment for a period of less than nine months.

Material and Method

The patients whose response to treatment was studied came from:

1—The maximum security ward.
2—Five intermediate type locked wards and a ward of chronically regressed patients.
3—Two open wards.

Cases were assessed at the end of the year irrespective of whether they were still on Thorazine or had completed their course. They were classed as residents of the wards they occupied at the conclusion of the year, which had the effect of concentrating the hard core cases in the maximum security wards. Hard core cases were also likely to receive higher total doses of Thorazine as they were liable to be continued on the drug until some improvement was noted.

From Warren State Hospital, Warren, Pa.

Cases included are those treated by the author and also by six other doctors who varied in the technique of administration of the drug as regards dosage and duration. No case received more than 800 milligrams per day, many considerably less.

The majority of cases were schizophrenic reactions in varying degrees of chronicity, and also included were manic and depressive reactions, chronic brain syndromes, some with convulsive disorders and personality disorders. Many had failed to respond adequately to other forms of treatment, but any receiving other forms of treatment during that year were excluded from the study.

Assessment was made on clinical grounds by the author who used as his criterion an appreciable change of behavior or pathological mental content, for example, a change from being constantly aggressive to milder episodes at less than weekly intervals, or a reduction of delusional or hallucinatory experiences of the same degree. The patient's nurse assessed the cases as to the degree or absence of improvement. The author and the supervisor of nurses then classified the cases as those who did, or did not improve on Thorazine during the year 1956. This method is too crude to establish the optimum dosage in milder cases, but useful to indicate the effects of the drug in the more serious psychotic cases.

Results

1—In the open ward all improved who received the drug for more than two months.

2—In the intermediate wards (all locked wards excluding the maximum security ward) the results are represented in Table 1, which enumerates the total amount of Thorazine received, the duration of treatment and the results obtained.

TABLE 1

Duration of Treatments in Months

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9+*
Total dose under 20,000 mg	12	11	2	3		1			
	24	14	6	3		1			
20,000-50,000 mg		0	5	12	17	8	1	2	2
		1	6	16	18	11	1	3	3
20,000-100,000 mg				2	2	2	6	3	8
				3	2	2	6	6	9
Over 100,000 mg					1		1	3	11
					1		1	3	13

Intermediate type wards 153 cases.

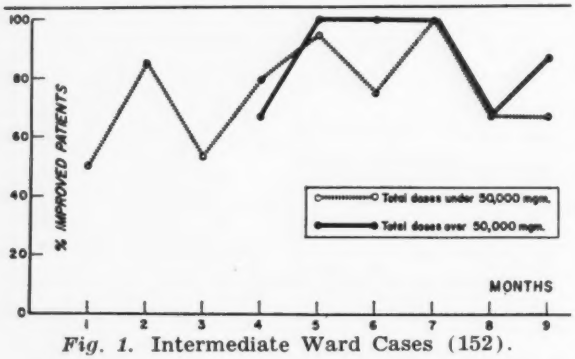


Fig. 1. Intermediate Ward Cases (152).

These results are expressed in Figure 1, where the proportion of improved cases is indicated as a percentage of the total number of cases in each group.

3—In the maximum security ward the results are shown in Table 2.

These results are expressed in Figure 2.

In milder cases the criterion used was too crude to indicate optimum doses and duration of treatment. In intermediate type cases the optimal duration of treatment is from four to nine months after which the number of improved cases is not increased. Most cases respond to a total dosage of less than 50,000 milligrams.

In maximum security cases, none of the cases who received under 50,000 mgms for any period of time improved, none of the

TABLE 2

Duration of Treatments in Months

	4	*5*	*6*	*7*	*8*	*9+*
Total dose under 20,000 mg	0					0
	—					—
	1					1
20,000-50,000 mg	0	0			0	0
	—	—			—	—
	1	1			1	1
50,000-100,000 mg			0		0	4
			—		—	—
			1		1	4
Over 100,000 mg			1		2	6
			—		—	—
			1		3	6

Maximum security wards 22 cases.

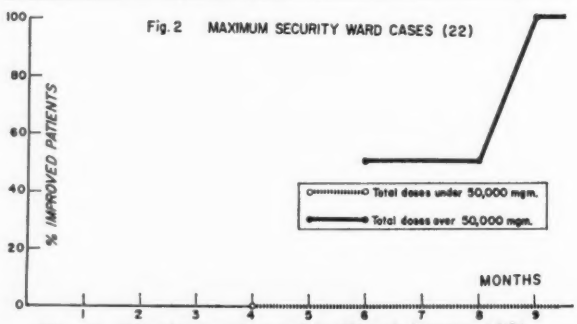


Fig. 2. Maximum Security Ward Cases (22).

cases who received under 100,000 mgms for less than nine months improved; only 50% of cases who received over 50,000 mgms for less than nine months improved, and all cases who received over 50,000 mgms for over nine months improved.

Discussion

An adequate clinical trial of Thorazine requires the administration of a minimum total dose of 50,000 milligrams for a minimum period of nine months. This study indicates that results may be expected in general in the first few months in most cases, and in the last three months of a year's treatment of difficult cases. Workers in France have noted a similar phenomenon.[1]

Further work is planned to investigate the forms of psychosis which respond in this way, and also, the relationship between the time required to develop a psychotic process and the time required for treatment to be effective.

Metropolitan State Hospital, Waltham, Mass.

BIBLIOGRAPHY

1. Achaintre, et al.: *International Record of Medicine*, Vol. 170, No. 4, April 1957.

Electroshock Therapy in the Presence of Retinal Detachment

WILLIAM KARLINER, M.D.

Whether actual or threatening retinal detachment is a contraindication to electroshock therapy has not been answered convincingly. No complications from the treatment of patients with ablation of the retina have been reported. The available literature also fails to disclose any patient with ablation of the retina treated with electroshock who suffered ophthalmologic complication. The following are case reports of two such patients.

This 67 year old married housewife gave a history of having been depressed for two months. She lost appetite and about 25 lbs. in weight; she suffered from insomnia, loss of pep and complete loss of interest. She expressed feelings of listlessness, uselessness and hopelessness. The past history revealed similar episodes of depression 20 years previously and another 5 years previously. In addition to a hypertension of approximately 200/100, the patient developed an obstruction in the superior temporal retinal vein of the left eye in 1946. The vision in the left eye dropped to 4/200. She was treated with heparin and her vision improved to 20/70 subsequently. In August 1952 she developed a retinal detachment in her left eye. Operation was not successful because of the complicating retinal pathology. Since that time a mature subluxated cataract had developed in the left eye. Since the patient's depression did not respond to conservative measures, electroshock was recommended. The patient was given eight electroshock treatments with improvement in her mental state and without any aggravation of the ophthalmological condition.

The second patient is a 57 year old widow who suffered from a retinal detachment in the left eye in 1950. Following a successful operation, the patient completely recovered her vision. However, one week before her discharge from the hospital, the patient became depressed, lost her appetite and was unable to sleep well. She became restless, fatigued, lost interest in everything and expressed suicidal thoughts. She admitted anxiety and various fears. The patient was seen in psychotherapy and given medications without benefit. After a suicidal attempt in 1952 electroshock was recommended. The patient's ophthalmologist advised against shock treatments because of the history of retinal detachment and a high myopia which had always been present. After considering the patient's mental condition and the added risk of giving electroshock, I decided to treat her. She was given nine electroshock treatments with some improvement of her depressed state. No change was found in her follow-up ophthalmologic examination.

Summary

Two patients with retinal detachment were given electroshock treatments without any ill effect on the eyes. In the first patient, the ophthalmologist saw no reason for objecting to electroshock; in the second patient, another ophthalmologist objected to electroshock, but the patient's mental condition grew worse and the additional risk seemed warranted. Both patients took the electroshock treatments well and did not show any complications of their eye conditions.

Although no definite conclusion can be drawn from the treatment of these two patients, retinal detachment should not be considered an absolute contraindication to electroshock therapy.

Scarsdale, New York

BALDPATE, Inc.

Geo. Fleetwood 2-2131 **Georgetown, Mass.**

Located in the hills of Essex County, 30 miles north of Boston

For the treatment of

psychoneuroses, personality disorders, psychoses, alcoholism and drug addiction.

Definitive psychotherapy, somatic therapies, pharmacotherapy, milieu-therapy under direction of trained occupational and recreational therapists.

HARRY C. SOLOMON, M.D.
Consulting Psychiatrist

GEORGE M. SCHLOMER, M.D.
Medical Director

FAIRVIEW Sanitarium

2828 S. PRAIRIE AVE.
CHICAGO
Phone VIctory 2-1650
J. DENNIS FREUND, M.D.
Medical Director

DEVOTED TO THE ACTIVE TREATMENT OF

MENTAL and NERVOUS DISORDERS

Specializing in Psycho-Therapy, and Physiological therapies including:

- Insulin Shock
- Electro-Narcosis
- Electro-Shock
- Out Patient Shock Therapy Available

ALCOHOLISM Treated by Comprehensive Medical-Psychiatric Methods.

HALL-BROOKE

An Active Treatment Hospital, located one hour from New York

A licensed private hospital devoted to active treatment, analytically-oriented psychotherapy, and the various somatic therapies. Each patient is under daily psychiatric and medical supervision.

HALL-BROOKE, Greens Farms, Box 31, Conn.
Tel.: Westport, CApital 7-5105

GEORGE S. HUGHES, M.D.
LEO H. BERMAN, M.D.
ALFRED BERL, M.D.
LOUIS J. MICHEELS, M.D.
ROBERT ISENMAN, M.D.
JOHN D. MARSHALL, JR., M.D.
PETER P. BARBARA, PH.D.
HEIDE F. and SAMUEL BERNARD, Administration

New York Office: 46 East 73rd Street — LEhigh 5-5155

Saint Joseph Sanitarium

(Supervision of Sisters of Mercy)

P. O. BOX 236 — DUBUQUE, IOWA

or phone 3-8291 for information

Mild Mental and Nervous Cases
also
Convalescent and Rest Patients

Shock Therapy, Hydrotherapy, Physiotherapy, Occupational Therapy.
Competent Staff.

Founded 1879

RING SANATORIUM

Eight Miles from Boston

For the study, care, and treatment of emotional, mental, personality, and habit disorders. On a foundation of dynamic psychotherapy all other recognized therapies are used as indicated. Cottage accommodations meet varied individual needs. Limited facilities for the continued care of progressive disorders requiring medical, psychiatric, or neurological supervision.

Accredited by the APA and the Joint Commission on Accreditation of Hospitals.

BENJAMIN SIMON, M.D.
Director

CHARLES E. WHITE, M.D.
Assistant Director

ARLINGTON HEIGHTS, MASSACHUSETTS - MIssion 8-0081

A NEUROPSYCHIATRIC FOUNDATION
THE

ROGERS MEMORIAL HOSPITAL

The Hospital is situated on the Nashotah Lakes, 30 miles west of Milwaukee, providing the ideal, restful country environment and the facilities for the modern methods of therapy of psychoneuroses, psychosomatic disorders, alcoholism, and the other neurologic and psychiatric problems. Occupational therapy and recreational activities directed by trained personnel.

OCONOMOWOC, WISCONSIN
PHONE LOgan 7-5535

OWEN OTTO, M.D.
Medical Director

EUGENE FRANK, M.D.
LOUIS J. PTACEK, M.D.
LOREN J. DRISCOLL, M.D.

LEROY A. WAUCK, PH.D.
Clinical Psychologist

FAIR OAKS

INCORPORATED

SUMMIT, NEW JERSEY

A fully approved Hospital for intensive treatment and management of problems in Neuropsychiatry.

OSCAR ROZETT, M.D.
Medical Director

THOMAS P. PROUT, JR.
Administrator

BEVERLY HILLS CLINIC and SANITARIUM

210 N. Westmoreland Avenue — WHitehall 3-4651
Dallas 11, Texas

A private clinic and hospital for nervous and mental diseases both for in-patients and out-patients—stressing a homelike environment with separate building units and special cottages—air-conditioned.

A complete neuropsychiatric diagnostic and treatment center including a department of psychology—encephalography—clinical laboratory and X-ray—psychotherapy—electroshock and insulin coma therapy, as well as psycho-surgery.

ARTHUR J. SCHWENKENBERG, M.D.
JOSEPH L. KNAPP, M.D.
JACKSON H. SPEEGLE, M.D.

Neurology

FRED H. JORDAN, M.D.
HENRY P. HARE, JR., M.D.
LUDLOW M. PENCE, M.D.

Psychiatry

GLENSIDE HOSPITAL

FOUNDED 1909

Located in an attractive rural setting in the heart of Boston for the care of nervous, mental and geriatric disorders, alcoholism and drug addiction.

The new Ordway Therapy Unit includes the most modern electrotherapy equipment. Anesthesia by the Hand-Auden Associates and trained personnel available to courtesy staff.

DORIS M. HORWOOD, *Superintendent*

RUTH M. CROSSFIELD, M.D., *Medical Director*

6 PARLEY VALE, JAMAICA PLAIN, MASS.
JAMAICA 4-0044 RATES MINIMAL

50 BEDS

HILLCREST HOSPITAL

EST. 1905

(formerly The Retreat, Inc.)
DES MOINES 12, IOWA

For the diagnosis and treatment of Nervous and Mental Disorders in a homelike environment.

Occupational Therapy, Physiotherapy and Shock Therapy
Open Psychiatric Staff

HERBERT C. MERILLAT, M.D., *Medical Director* HERBERT W. VETTER, *Administrator*

PINEWOOD

Dr. Joseph Epstein
Dr. Louis Wender
Physicians in Charge

DR. WALTER A. THOMPSON, F.A.P.A., Clinical Director

Westchester County **Katonah, N. Y.** **Tel.: Central 2-3155**

A competent sixty bed psychiatric hospital offering an approved program for training residents in neuropsychiatry. Psychoanalytically oriented. Patients receive individual treatment sessions and also group therapy. Electroshock therapy and its modifications available. Pharmacological therapies. Consulting staff of specialists. Monthly clinical conferences open to the profession.

N. Y. City Offices—By Appointment

DR. EPSTEIN—975 Park Ave.—Tues., Thurs., Sat. RH 4-3700
DR. WENDER—59 East 79th St.—Mon., Wed., Fri. BU 8-0580

SEDATION AND EUPHORIA FOR NERVOUS, IRRITABLE PATIENTS

Use **VALERIANETS-DISPERT** Reg. U S Pat Off

Each Chocolate Coated Tablet Contains Ext. Valerian (highly concentrated) 0.05 Gm. dispergentized finely subdivided for maximum efficiency

TASTELESS, ODORLESS, NON-DEPRESSANT SEDATIVE and EUPHORIC

VALERIANETS-DISPERT are indicated in cases of nervous excitement and exhaustion, anxiety and depressive states, cardiac and gastrointestinal neuroses, menopausal and menstrual molimena, insomnia.

Dose: 1 or 2 tablets t.i.d — Bottle of 50 and of 100 tablets
At All Prescription Pharmacies

STANDARD PHARMACEUTICAL CO., INC., • 253 West 26th St., New York

For Intestinal Dysfunction
NUCARPON®
Each tablet cont: Extract of Rhubarb, Senna, Precip. Sulfur, Peppermint Oil, Fennel Oil in activated charcoal base

For making Burow's Solution U.S.P. XIV
WET DRESSING Use
PRESTO-BORO®
(Aluminum Sulfate and Calcium Acetate)
POWDER IN ENVELOPES — TABLETS —
For treatment of Swellings, Inflammations, Sprains

For Pulmonary Conditions
TRANSPULMIN®
3% solution Quinine with 2½% Camphor for Intramuscular Injection.